AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

Reg. U. S. Pat. Off.

NRA CODE GRAPHIC ARTS INDUSTRY 1934

Volume 71 Number 15

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Automotive Industries is published every Saturday by

CHILTON COMPANY

Chestnut and 56th Streets, Philadelphia, Pa.

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Portland, Oregon—72 Fifth St.
Entered as second-class matter Oct. 1, 1925, at the post office at Philadelphia, Pa., under the act of March 3, 1879.

SUBSCRIPTION RATES: United States, United States Possessions, and all countries in the Postal Union, $1.00 per year; Canada and Foreign, $4.00 per year. Single Copies, 25c.

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Automotive Industries—The Automobile is a consolidation of the Automobile (monthly) and the Motor Review (weekly), May, 1902; Dealer and Repairman (monthly), October, 1903; the Automobile Magazine (monthly), July, 1907, and the Horseless Age (weekly), founded in 1895, May, 1918.

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THIS Four-Way Drilling Machine illustrates the flexibility possible in making up way drilling equipment with Footburt Cam Units.

There are three sizes of units, 14", 10" and 6" used, the size being determined by the travel required and amount of metal removed. One of the 6" units is mounted at an angle showing the possibility of using these units in any advantageous position.

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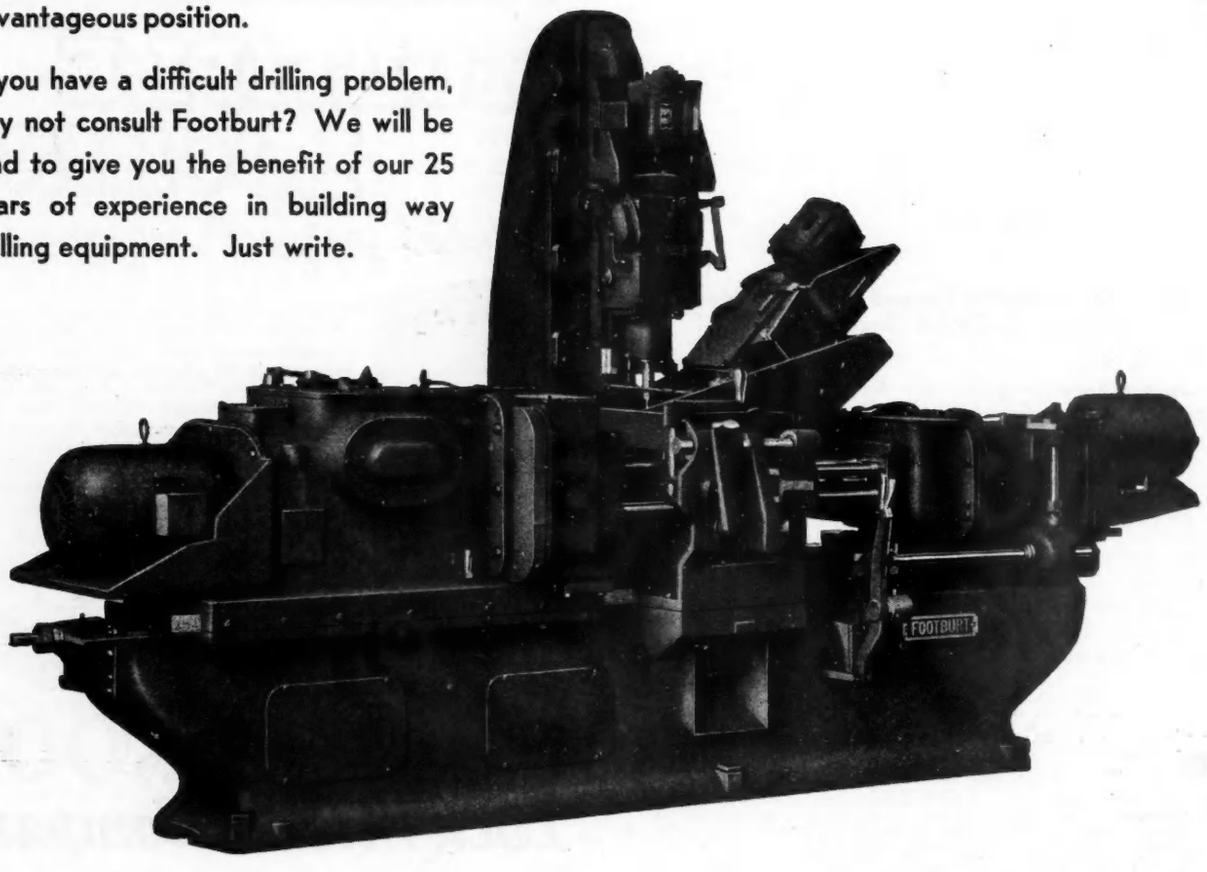


THE
FOOTE-BURT COMPANY
CLEVELAND, OHIO

Detroit Office: 4-151 General Motors Building Chicago Office: 565 Washington Boulevard

AUTOMOTIVE INDUSTRIES

Vol. 71, No. 15 ▫ THIRTY-SIXTH YEAR ▫ October 13, 1934

Prices Cut to Speed Clean-Up

Sales Receding Pending New Model Announcements

by Athel F. Denham

Detroit Editor, Automotive Industries

Retail domestic sales of passenger cars took a further drop the first week in October, the decline for the industry being in the neighborhood of 10 to 15 per cent from comparative period in October and also below the totals for the same period last year.

From here on the industry is planning largely to coast along, cleaning up present new car stocks which for the industry are estimated to average about seven to ten weeks supply at the present rate of sales. To speed the clearance, price cuts have already been authorized by many makers and reductions on some other lines are anticipated. New models will not be announced in quantities until present stocks are well disposed of.

One line of 1935 models is to make its appearance within the next ten days, but changes in these models will not be of major character so that production could be continued without a material shutdown for line changes at this factory.

Used car stocks continue to aggregate materially higher totals comparatively than for new cars and used car disposal campaigns seem to be in order for the dealer organizations of a number of major producers. Used car stocks are considerably higher than new car stocks.

Oldsmobile reports September retail sales 96 per cent ahead of the same month last year.

Retail deliveries of Chrysler and Plymouth cars by Chrysler dealers for the 38 weeks of the year 1934, including Sept. 22, totaled 113,823 units. This is more than double the 54,223 units reported for the corresponding 38 weeks of 1932 and represents an increase of 26.1 per cent over the 90,250 units reported in the corresponding period of 1933.

Deliveries made by Dodge dealers within the latest report week bring the proportionate year-to-date sales volume well within reach of the 200,000 mark, the precise figure being 193,714; this, compared to the 142,272 sales on record for the corresponding period of 1933, places the 1934 delivery volume 36.2 per cent ahead of that of last year.

Sales of passenger cars and trucks made by Dodge dealers showed a further increase in the week ending Sept. 29 in which deliveries amounted to 4412, as against 4007 deliveries recorded for the immediately preceding week. The week's delivery figure of 4412 vehicles includes 1378 Dodge passenger cars, 1182 Dodge trucks, and 1852 Plymouths.

During September, Buick delivered a total of 5458 units as compared with 3485 for the same month last year, a gain of 56.5 per cent. The September volume was the best Buick has experienced since 1930 when September sales were considerably higher due to the new model announcements. During the last 10 days of last month Buick deliveries totaled 1944 units.

Auburn shipped 1040 cars during September, according to Roy H. Faulkner, president. This was more than triple the shipments in September, 1933, which totaled 305 cars, and 26 per cent more than September, 1931, the company's banner year. Mr. Faulkner stated that more than 500 unfilled orders were now on hand at the factory. The October production schedule will be the same as for September.

Charles F. Kettering

". . . I cannot help but feel that in a very short time we are going to break loose another great piece of basic information which will keep us industrially busy for a great many years to come." *See page 432.*

New AFL Head in Detroit Area Plans Member Drive as Production Expands

"We do not seek strife or trouble but wish to carry on our work and negotiations with management in an orderly and business life way." F. J. Dillon, newly named chief representative of the American Federation of Labor for the automotive industry, said in an interview obtained by AUTOMOTIVE INDUSTRIES this week. Mr. Dillon was formerly organizer in Flint and succeeds William Collins who has been transferred to New York.

As to organization work, Mr. Dillon said "We are planning to inaugurate a new drive for members in the industry as soon as production begins to pick up again and are now laying our groundwork in that direction. As soon as Mr. Green (A.F.L. president) returns from the Federation convention in San Francisco, we expect to hold conferences and to increase our staff of organizers in the

(*Continued on page 433*)

IN THIS ISSUE

The S.A.E. Production men had a productive meeting in Detroit an account of which is on page 438

White has a new Cab-Over-Engine job that is described on page 444

Governmental Second Thoughts are pointed out in the article by Julian Chase on page 449

The solution of an interesting assembly problem on Domark engines is explained on page 452

Nine Months' Output 2,500,000 Units; Exceeds Totals of 3 Preceding Years

Production passed the 2,500,000 mark during the first week of the present month!

In the first nine months of this year, the industry has produced more units than in any of the preceding three years and it now looks reasonably certain that total output in 1934 will approximate at least 2,800,000 units.

AMA (formerly NACC) data and unofficial Ford estimates indicate that September production amounted to 173,300 units as compared with 197,608 a year ago and 190,825 in August. September volume lifts the total for the first three-quarters to 2,492,142 against 1,700,815 in the same period last year and the following full year totals: 1933, 1,985,909; 1932, 1,431,494; 1931, 2,472,359.

September production of AMA members, according to an estimate released by Alfred Reeves, vice-president, was 113,316 units which compares with 166,321 in August and 147,800 in September, 1933. The nine-months' output of AMA members is estimated at 1,752,460, an increase of 34 per cent over the similar period last year.

Hudson Reports 5000 Sales Gain for May-Sept. Period

An increase of more than 5000 passenger cars during the May-September period of this year is reported by the Hudson Motor Car Co. over the corresponding period of 1933. During the months under review sales of Hudsons and Terraplanes in the United States only aggregated 25,965 cars, an increase of 28 per cent, as compared with 25,277 cars in the same period of last year. This gain compares with an approximate increase of 24 per cent for the May-September period for the industry as a whole.

Stocks of cars in dealers' hands as of Sept. 1 were reduced 42 per cent, according to the company's report, from the peak stocks held in May. The report shows that stocks average about five cars per dealer on Sept. 1.

Fay Recalled to Toledo by Auto-Lite

Byron Fay, former Toledoan, who has been in charge of the Moto Meter Gauge and Equipment Corp. plant at Lacrosse, Wis., has been named plant manager for the Electric Auto-Lite Co. in Toledo, it was announced by R. G. Martin, president.

James P. Sexton has been named director of traffic for Auto-Lite and its 21 affiliated and associated companies, and also has been named to the same post by the Bingham Stamping and Tool Co. and Logan Gear Co. Sexton is a Toledoan who served the Auto-Lite as traffic manager a few years ago.

Work on a contract for two million hub caps for Plymouth and Dodge has been started by Moto Meter, subsidiary of Auto-Lite, in Toledo plant.

Studebaker Sales Executives Changed

C. H. Wondries, manager of the truck sales of the Studebaker Sales Corp., has announced the following changes in the personnel and headquarters of the sales executives:

J. L. Engels, formerly sales promotion manager, truck division, has been transferred for field work to the position of district truck manager, Cleveland branch.

H. O. DeBoer, formerly district truck manager at Chicago, has been transferred to the home office truck division as special representative. He will spend most of his time in the field, assisting the sales efforts of district truck managers through group dealer meetings.

Jay Rathbun has been appointed district truck manager at Atlanta branch succeeding M. H. Sinnott. Mr. Sinnott has been transferred to Louisville as district truck manager for certain territory under the Cleveland and South Bend branches, succeeding O. E. McIntyre, who has resigned.

E. J. Frederick, formerly district truck manager at the Cleveland branch, has been transferred to the St. Paul branch, where he will act in the same capacity, succeeding W. Vander Meulen. Mr. Vander Meulen has been transferred to the Chicago branch as district truck manager, succeeding J. Swanson. Mr. Swanson will remain in the Chicago branch as district truck manager taking over the territory formerly handled by Mr. DeBoer.

H. R. Perkins, formerly district truck manager for certain territory under the Cleveland and Washington branches, and J. M. Foster, formerly district truck manager at Philadelphia branch, have resigned.

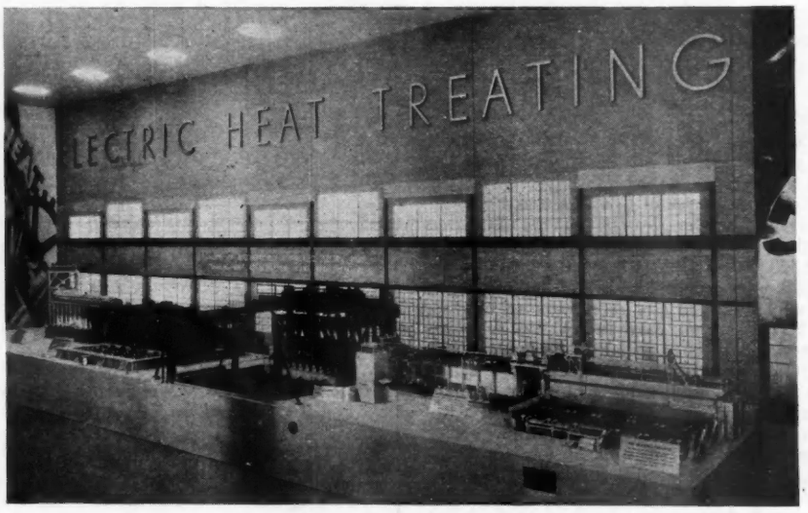
New 4-Cylinder Model for British Ford Line

The British Ford company will add a new four-cylinder 10 h.p. model to its line for 1935, it is reported; the two and four-door sedan body types will sell at £135 and £145 respectively. The present Ford line consists of a 14.9 h.p. four and the V-8.

The first of these two models has been so successful, one of our British contemporaries indicates, that two British makers are enlarging their cars which compete with it to bring their specifications more nearly in line with the Ford.

Rim Inspection Report

A total of 526,472 rims were inspected during September against 701,302 for the same month a year ago, according to the report of the Tire and Rim Association, Inc. The nine months' total for this year is 9,928,287 against 7,057,758 for the January-September period of 1933, the association reports.



Bethlehem Steel Display

This operating model of the large automatically operated heat-treating department of the Bethlehem Steel Co. was a feature of the company's display at the recent National Metal Exposition in New York

Enroute to London

A 42 car train loaded with 165 Studebaker passenger cars leaving South Bend consigned to Studebaker Distributors, Ltd., London. This is one of the largest individual shipments of Studebakers to an overseas distributor in recent years

J. H. Shoemaker Opens Engineering Offices

J. H. Shoemaker, Code Commissioner, Leaf Spring Institute, has announced the opening of engineering offices at 417 Stormfeltz Lovely Bldg., Detroit. The office will be in charge of Karl K. Probst, consulting engineer for the Institute, and formerly chief engineer, Logan Gear Company. This move has been necessitated by the large amount of engineering assistance requested by car manufacturers in connection with the development by the Institute recently of cars with independent four wheel springing, using leaf springs.

Timken Ad Campaign Awarded First Prize

The Timken Roller Bearing Co. advertisements in this publication have been awarded first place by the judges for the most effectively conceived and executed industrial advertising campaign of the year in the Tool and Equipment Division of the National Industrial Advertisers Association at the annual convention recently held in Cincinnati.

CCC Contract for Heil

Heil Co., Milwaukee, has received a Government order for 650 steel cargo bodies for motor trucgs used in Civilian Conservation Corps camps.

Auto Stamping On 3 Shifts

City Auto Stamping Co., Toledo, is now working three shifts on die and machine tool work for new automotive models, with 250 on payrolls.

To Simplify Work Of NRA Advisory Council

National Recovery Board Seeks to Expedite Action On Non-Routine Matters

To expedite action and provide a method for disposing of non-routine administrative matters the existing NRA Advisory Council is to be reorganized by the National Industrial Recovery Board recently named by President Roosevelt as part of the general reorganization of NRA. Originally the council was formed to provide a clearing house for NRA's three advisory boards; under the new arrangement the council will be expanded to include representation of the legal and research and planning divisions.

The work of the council will be conducted by a Special Assistant to the Recovery Board. This officer, yet to be appointed, will be a member of the council of nine which will include in its membership two representatives each from the Industrial, Labor and Consumer advisory boards, and one each from the legal and research sections. Functional duties of the council will be to present to the Recovery Board definite recommendations on the disposal of issues involving policy or controversial problems in a purely advisory capacity. The Advisory Council will absorb the functions of the office of Assistant Administrator for Policy, heretofore held by the Acting General Counsel of NRA, who becomes an ex-officio member of the Recovery Board.

A committee on reference, composed of the Special Assistant, and two or more executive secretaries, is to be formed to obtain the desired expedition of action, and full representation of viewpoints on matters placed before the council. This committee may dispose of matters itself or refer them to the Advisory Council or any other special committees which shall be named by the Committee on Reference.

GM Dealer Stocks Drop 17,910 Units In Sept.; Sales Off 15,000 From Aug.

Stocks of new GM cars in the hands of the corporation's dealers in the United States declined 17,910 units in September, the first month this year in which retail sales have exceeded dealer purchases. Although dealer inventories are still 87,467 units higher than at the first of the year, there is nothing abnormal about the situation since field stocks were down pretty close to zero when the year began, due to production delays.

GM dealers sold 71,648 units in the domestic market in September as compared with 86,258 in August, and 71,458 a year ago. In the first nine months of the year U. S. retail sales amounted to 754,121, a marked gain over the 644,892 units sold in the similar period last year and practically equal to total 1933 volume of 755,778.

In September sales to U. S. dealers declined sharply to 53,738 from 87,429 in August and from 67,733 in September, 1933. Total dealer purchases in the first three-quarters numbered 841,588 as compared with 672,536 in the same period last year and 729,201 in all of 1933.

Sales to dealers in the United States and Canada plus overseas shipments totaled 71,888 in September as compared with 109,278 in August and 81,148 in September last year. For the year to date, sales in this category amounted to 1,065,766 against 784,302 in the first nine months of 1933 and 869,035 in all of last year.

Sales to Canadian dealers plus shipments abroad amounted to 18,150 units in September, a big gain over the 13,415 sold in the same month last year. The nine-month total of such sales was 224,178 against 111,766 last year.

Many Lines Drop Prices in Clean-Up; Dealers Sharply Criticise Factories

Clean-up price reductions have come thick and fast in recent weeks indicating that the annual clearance is now on in a big way. Acting on factory authorizations, the list of cars on which state advisory committees have approved reductions include Plymouth, De Soto, Pontiac, Graham, Hudson, Terraplane, Hupp and Reo. In addition reductions have been approved on one body model each in the Nash Advanced Eight, LaFayette and LaSalle lines.

As not infrequently happens, the clean-up is producing quite a crop of charges and countercharges as to whether its cost is being equitably distributed. Moreover this is the first clearance season under the code and some problems have arisen that were not anticipated as previously pointed out in these columns (AI July 14, page 35 and Aug. 25, page 216).

Under the code, clean-up price reductions must be authorized by the factory concerned and approved by the dealer state advisory committees before they become effective. Among the charges made by dealers as they gained experience with administration of this provision is that some factories have used it to avoid rebating dealers on cars in stock as their contracts require them to do when they announce price reductions, and that inconsequential changes have been made to obsolete previous production so that it could be sold at clean-up prices. Although discussion of the questions involved have been going on for weeks in the trade, attention was focused on them recently when the Florida advisory committee refused to approve reductions authorized by three factories and wired to General Johnson in Washington that if he exercised his power to approve the cuts, the Florida dealers first be given an opporunity to be heard.

In Florida, it was charged that one factory authorized 20 per cent reductions on existing stocks pending new model announcements. At about the same time it was asserted that this factory advised its distributing organization that the cars obsoleted could be made current and sold as new models at full price by the addition of equipment costing the dealer less than $40. Furthermore, the factory was said to have explained that the individual dealer could decide for himself whether he wanted to clear the obsolete models at the proposed reductions, or sell them as new models by the addition of the necessary equipment.

Another factory, the Florida committee charged, "made absolutely no change except to start the new series cars with a different serial number, and then notified us and authorized their dealers to sell" cars of the previous series at a discount.

A second request for reductions received from another factory which some months ago introduced 1935 models after having had price cuts approved on cars produced early in the year, also stirred the dealers' ire. They pointed out that such practice so extended the clean-up period during which dealer operations were unprofitable, that there was not enough time left during which the dealer could benefit by full list prices and full gross margins.

In still another case, the Florida committee asserted that a factory had authorized reductions in anticipation of new models later in the year. In this case it was stated that dealers were told "that they would have a distinct advantage over competition and specifically told them to mention nowhere in radio or newspaper advertising that they were discontinued models." The committee emphasized that while reductions were asked on discontinued models, dealers were urged not to sell them as such. One committee member said, "I maintain that it is unfair to the consumer to secure permission to reduce prices because of discontinued models but to advertise to the public that they are brand new cars on which a big price reduction is made. . . . Don't you think that such advertising is misleading and therefore prohibited" by the code?

Grant Feature Speaker at SAE Production Banquet

R. H. Grant, vice-president, General Motors Corp., was the keynote speaker at the Production dinner Thursday night. On this occasion, too, the Detroit Section Gold Medal for the best undergraduate thesis in any Michigan university was awarded to Norman L. Willett of the University of Detroit who was assisted by John Pahl and William Sherman. The paper dealt with the design and construction of a utility glider and marked the third consecutive time the medal has gone to the U. of D.

Attendance at the technical sessions was not up to expectations. No action was taken on the suggestion made in W. D. Huffman's paper relative to forming a committee to investigate cutting oil problems. In the discussion of his paper it was asserted that oil men have practically no chance of getting a hearing at factories on cutting oil selection. There seems to be a need for centralized authority on this score in the best interest of economy for all concerned.

Studebaker Names Brooks Canadian Vice President

M. S. Brooks has been appointed vice-president and general manager of the Studebaker Corp. of Canada, Ltd., succeeding D. R. Grossman who has resigned. Early in his career in the automotive industry Mr. Brooks was associated with Studebaker for nearly eight years as sales manager and managing director of the Studebaker Corp. of Australasia in Sydney, Australia. Mr. Brooks began his work in the industry as a tractor expert with the Canadian Fairbanks Morse Co. in Saskatoon.

Later Mr. Brooks joined the Ford Motor Co. and was sent to Australia to investigate possibilities of opening body and assembly plants. He was afterwards appointed general service manager of the then newly formed Ford Motor Co. of Australasia. It was while filling this position that he was appointed to a similar position with the Studebaker organization in Australia.

After remaining in this position for some time Mr. Brooks returned to this country and served as manager of retail branches for the Studebaker Corp. Later he resigned to join the Chrysler Corp. of Canada as a sales executive. He resigned from the latter organization to rejoin Studebaker.

Edsel Ford greets Maria Jeritza, diva who sang on first Ford Sunday night broadcast, and Victor Kolar, orchestral conductor in charge of the Ford Programs

Proponents of Safety Code Would Set Drastic Condition Standards for Cars

Evidence is accumulating that a movement which has been foreshadowed, discussed and hinted at for a number of years will reach a decisive point within the very near future. In brief, it may be described as a broad effort to formulate a code defining what is a safe vehicle to operate on the highways; reducing to a minimum the human factors involved in making such a determination, and establishing some definite considerations which might be used, for example, in determining the responsibility of owners and drivers for the condition of a vehicle prior to an accident.

Many organizations have, at one time or another in the last few years, interested themselves in the problem. Some stormy sessions of the 1930 National Congress on Street and Highway Safety resulted from the attempts of a subcommittee to determine what proportion of motor-vehicle accidents were traceable to mechanical defects in the vehicle. The argument was continued into the 1934 meeting of the conference, without a completely satisfactory solution being reached, on a question which naturally is of extreme direct importance to underwriters and motor-vehicle administrators.

With the adoption by a number of states of periodic-inspection plans for vehicles in operation, and of licensing rules which required that a test for an operator's license should be made in a vehicle which met certain standards of mechanical fitness, better statistics were available on the average mechanical condition of vehicles on the road. So far as is known, no comprehensive effort has been made to gather and interpret the body of such statistics, and with a wide variety of requirements being set up by the various motor-vehicle administration departments, it would be difficult to find a valid basis for comparisons.

During this period the National Bureau of Standards was formulating a brake code, which set mechanical and performance standards which could be used by motor vehicle administrators for determining adequate brake performance and many local authorities were setting their own brake regulations with a more or less competent determination of performance on the road.

The question of adequate headlighting has been fought back and forth to a point where a widely accepted table of performance specifications has been formulated, but the question is still regarded as open in many respects.

Interest in the problems of steering geometry, with the Ackermann linkage now more than a century old, has raised again more questions for which the answers do not receive universal assent.

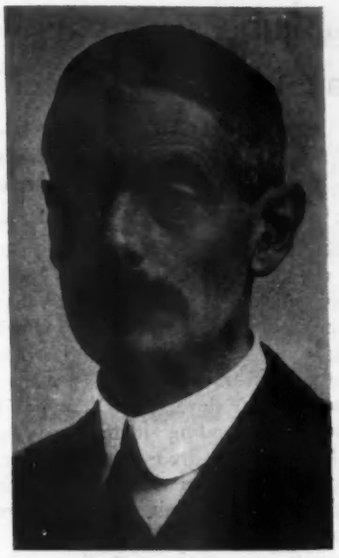
Completion in 1934 of the organization of the American Association of Motor Vehicle Administrators has provided those authorities with a clearing house for information and discussion of the mechanical performance of vehicles. At no time in the history of the automobile industry has there been so many projects initiated which have a more or less direct bearing on the operation of vehicles on the highway. The time seems at hand when an effort will be made to unify and codify all these efforts to provide some scheme of calibrating those aspects of motor-vehicle performance which have a bearing on the public safety. Every vocational division of the automotive industry should, therefore, be in a position to state adequately its interests and contribution to the solution of the general problem. Even vehicle manufacturers may find themselves in the position of being on the defensive in the face of a comprehensive code which, cloaked with legislative authority, might enforce the inclusion of certain design features in all motor vehicles for operation on the public highways.

There exists on paper at the present time, one provisional outline of a code to guide the determination of what, mechanically speaking, constitutes a safe vehicle. It takes into account brakes, headlamps, steering mechanisms, wheels and chassis alignment. It discusses the means of testing the condition of each of these factors, and a system of inspecting and rating the repair shops and other agencies which would make the routine determinations of the condition of vehicles. It mentions the possibility of licensing the shops and mechanics who would make such determinations, and sets up a complete system of tolerances beyond which a vehicle which failed to comply with them would be considered unsafe.

More drastic in its applications than any code of the sort suggested in responsible quarters, it is designed for the widest possible application which can be obtained for it, by whatever sound method is offered to put it into effect. If it cannot find acceptance through existing channels, it is conceivable that a new institutional set-up may be created to work for its adoption as the basis of future motor-vehicle legislation in the states; such an institution to be representative of all the interests favoring the adoption.

One serious bus disaster in New York state, alleged to be directly traceable to faulty brakes, has resulted in a complete overhauling of the state system of vehicle inspection. First regarded as a straw in the wind, the case may prove to be a much heavier missile propelled by a cyclone.

It can be stated positively that a determined effort to codify the mechanical components of motor-vehicle performance-safety is going to be made, and the first developments in the program are just around the corner.



Henry M. Crane

Report Franklin Bidder Makes $10,000 Deposit

A definite proposal for the purchase of the H. H. Franklin Co., now in bankruptcy, has been made by an unidentified bidder, according to reports in the daily press. It is said the bidder's proposal was accompanied by a certified check for $10,000. However, the size of the total bid is not revealed. The public reports indicate that the bidder, or bidders, contemplate production of an air-cooled Franklin car in the popular priced class.

SAE Met Section Hears Crane at First Session

The Metropolitan Section of S.A.E. opened its current season with a session last Monday night when Henry M. Crane, technical assistant to the president of the General Motors Corp., read a paper on "Recent Trends in Passenger Car Designs."

Mr. Crane discussed present-day passenger cars in systematic manner, starting with the power plant and ending with the general arrangement of the units and external form of the car as a whole.

Chevrolet Promotes Kane

W. J. Kane has been appointed manager of the Chevrolet Motor Company's Jacksonville zone, to succeed P. A. Watson, who resigned to operate a dealership at Miami. Mr. Kane has been with Chevrolet for a number of years, serving as assistant zone manager at Charlotte, N. C., until his appointment to Jacksonville.

Diamond T Co. to Build 107 Trucks for War Dept.

A War Department contract calling for 107 trucks to cost $108,846 has been awarded the Diamond T Motor Car Co.

New NRA Price Policy May Not Effect Steel

Mill Operations Lower Pending Resumption of Car Making Schedules

In the light of the well-remembered conditions that prevailed in the pre-code era, steel market observers are inclined to discount the effect on prices that a change in the NRA attitude toward price-fixing would have. While there have been in former years occasional periods of ragged values, more often than not the market's outstanding feature was uniformity of prices, brought about through the natural workings of the law of supply and demand and a sane regard for production costs.

Expectations on the part of steel buyers that a change from the code authority regulation of the price-making method to a system that would not have the benefit of governmental approval would, of itself, bring lower prices appear to be pretty far-fetched. After all prevailing prices are determined by the steel industry on the basis of average costs and in a free market this condition would hardly be altered. Of course, smaller rolling mills with obsolete equipment might find it more difficult to maintain their head above water. This struggle between low and high cost producers is possibly softened and retarded under code procedure, but, code or no code, the law of the survival of the fittest will eventually prevail.

For the present price changes are chiefly by way of revision of extras through which disparities in the market for sheets and strip are being leveled. Nearly all changes in extras are in buyers' favor. Mild improvement is noted in specifications for cold-finished steel bars. Finishing mill operations in the Detroit district are sharply lower, pending resumption of more active schedules by a number of motor car manufacturers.

The American Iron and Steel Institute's figures of ingot capacity employed this week are 23.6, compared with 23.2 per cent last week.

Pig Iron—Buying by automotive foundries is strictly of the single car type, with prices unchanged. In a good many blast furnaces accumulation of stocks is becoming more and more marked.

Copper—What the status of "Blue Eagle" copper will be, if the N.R.A. changes its policy with reference to price-fixing is an outstanding market topic this week, especially now buying agreements with fabricators are to be enforced. Prices remain unchanged.

Tin—Steady and quiet, with spot Straits tin quoted at 50⅝ cents at the beginning of the week.

Lead—Amid fairly active demand from storage battery manufacturers, the price situation remains unchanged.

Zinc—Steady and moderately active.

Lower Steel Wages Hinted By Girdler

Republic President Says Industry Cannot Afford Present Rate in Speech

Possible reduction in steel wages was hinted at by Tom M. Girdler, Republic Steel president, in his recent address before the American Society for Metals in New York. The steel industry in its endeavor to cooperate with the Roosevelt program has been paying higher wages than it can afford, Mr. Girdler told his audience.

"I wish we could continue to pay these wages, or even better wages indefinitely," Mr. Girdler said. "I want to see the men who work for us get the best wages they possibly can get. But, unfortunately for the New Deal, it is one of the simple rules of economics that in order for money to be paid out, that money must be taken in. Furthermore, in the long run, money taken in must provide not only for wages, but for dividends to stockholders."

Mr. Girdler pointed out that with the decline in the operating rate which has occurred since July, losses for the year as a whole appear practically certain.

Eight Months Automotive Exports, Imports Nearly Triple '33 Values

	August				Eight Months Ended August			
	1934		1933		1934		1933	
	Number	Value	Number	Value	Number	Value	Number	Value
Automobiles, parts and accessories	....	$15,326,168	....	$8,051,309	....	$140,434,562	....	$57,106,323
Motor trucks, buses and chassis (total)	7,305	3,491,629	3,792	1,708,528	63,480	29,846,113	23,699	10,506,547
Under one ton	761	246,855	455	125,773	6,256	2,087,281	2,666	764,472
One and up to 1½ tons	5,785	2,484,815	2,802	1,043,760	49,094	20,428,436	17,984	6,681,883
Over 1½ tons to 2½ tons	591	492,586	370	301,147	6,389	5,123,361	2,277	1,810,051
Over 2½ tons	127	237,266	144	229,943	1,216	2,040,326	588	1,146,529
PASSENGER CARS								
Passenger cars and chassis	12,522	6,905,617	6,516	3,241,206	109,378	60,296,412	45,682	22,189,158
Low price range $850 inclusive	11,455	5,787,733	6,043	2,710,973	100,338	50,356,739	42,433	18,504,528
Medium price range over $850 to $1,200	784	743,437	259	248,409	6,142	5,922,510	1,877	1,810,052
$1,200 to $2,000	139	199,932	110	160,355	1,591	2,431,735	788	1,176,518
Over $2,000	53	138,094	35	96,180	484	1,273,587	213	556,232
PARTS, etc.								
Parts except engines and tires	....	....	....	....	....	....	....	....
Automobile unit assemblies	....	2,300,047	....	1,456,318	....	28,864,815	....	12,784,539
Automobile parts for replacement (n.e.s.)	....	1,864,948	....	1,072,395	....	14,561,885	....	7,439,701
Automobile accessories (n.e.s.)	....	214,350	....	123,914	....	1,755,514	....	892,684
*Automobile service appliances	....	160,883	....	84,696	....	1,614,890	....	596,686
Airplanes, seaplanes and other aircraft	107	1,680,330	68	867,916	295	5,199,585	302	4,200,555
Parts of airplanes, except engines and tires	....	642,960	....	171,966	....	2,494,427	....	1,388,683
INTERNAL COMBUSTION ENGINES								
Stationary and Portable:								
Diesel and semi-Diesel	17	16,455	3	2,140	83	204,460	18	60,443
Other stationary and portable:								
Not over 10 hp.	533	35,991	401	20,863	4,023	256,232	1,888	123,444
Over 10 hp.	85	48,876	38	22,303	665	428,735	460	198,429
Automobile engines for:								
Motor trucks and buses	321	31,058	156	26,297	3,370	426,354	1,470	191,017
Passenger cars	784	55,267	1,688	92,414	19,478	1,211,884	15,632	966,132
Aircraft	77	462,025	332	124,664	567	2,665,442	1,465	817,974
Accessories and parts (carburetors)	....	129,899	....	77,531	....	936,964	....	638,774
IMPORTS								
Automobile and chassis (dutiable)	59	11,729	50	42,094	334	100,208	307	163,689

* This class consists of three items: Automobile tire service equipment; pumps for gasoline and oil and "other automobile service appliances."

Government Loses 3 of 4 Cases Testing Legality of Price Fixing Under NIRA

With Washington turning toward a relaxation of code price and production control provisions, the week saw four court decisions all of more or less direct automotive interest on these controversial questions. Three of these decisions denied the legality of price provisions, while one upheld them.

In New York, a special statutory court consisting of a judge of the Federal Circuit Court of Appeals and two Federal District Court judges, upheld the constitutionality of the National Industrial Recovery Act, and also of the Shackno Law, the state NRA enabling legislation. The decision was on a suit brought by a local dealer, the Spielman Motor Sales Co., to restrain the state authorities from the enforcing of the marketing rules of the dealer code.

On the other hand, in Oklahoma City, Judge Edgar S. Vaught attacked the contention of the government attorneys who maintained that the sale of new cars and the trade-in of used ones was a transaction in interstate commerce. According to the Associated Press, the judge said: "If it is true, then Congress has the right to regulate the sale price of the suit of clothes you have on, the right to say what price I shall pay, or a merchant shall charge for the shotgun shells I buy, and everything in intrastate commerce, subject to the jurisdiction of the Federal government." The Court expressed the foregoing opinion in the case involving the indictment of Jack Kinnebrew and E. G. Leadbetter, motor car dealers.

The other two cases grew out of the recent order of the Fisher Lumber Corp., General Motors subsidiary, for some 40,000,000 board feet at prices said to range up to 12½ per cent under the minimums established by the Lumber Code (A. I., Sept. 8, Page 277). In Memphis, the Federal Court ruled that price fixing is not authorized by the Recovery Act and enjoined Federal officials from prosecuting lumber manufacturers for selling below code minimums. In another case, the Federal Court in Yazoo City, Miss., refused a petition for an injunction restraining lumber manufacturers from selling at less than code prices. In this connection it is interesting to note that the lumber manufacturers in a meeting within the past week voted to retain the minimum price provisions of their code.

John Cromwell Lincoln

To whom has been awarded the Samuel Wylie medal by the American Welding Society in recognition of his contributions to the advancement of the science of electric fusion welding. Mr. Lincoln is chairman of the Lincoln Electric Co.

Calvin P. Richter

Calvin P. Richter, metallurgist for Republic Steel Corp., died in Clearfield, Pa., while en route to attend the annual convention of the American Society for Metals. He was 45 years old. Mr. Richter is survived by his wife, his mother, Mrs. Minnie Richter of Monon, Ind., and a brother, Ralph, of Royal Oak, Mich.

U. S. New Car Registrations and Estimated Dollar Volume by Retail Price Classes—Eight Months

	UNITS					ESTIMATED DOLLAR VOLUME*				
			Per Cent of Total		Per Cent			Per Cent of Total		Per Cent
	1934	1933	1934	1933	Change	1934	1933	1934	1933	Change
Chevrolet, Ford and Plymouth	1,034,207	718,335	72.96	68.69	+44.3	$638,100,000	$394,300,000	64.16	57.21	+61.9
Others under $750	64,317	176,791	4.54	16.90	—63.6	44,500,000	115,000,000	4.47	16.68	—61.3
$751–$1,000	256,816	81,384	18.12	7.78	+216.0	209,600,000	69,800,000	21.08	10.13	+200.0
$1,001–$1,500	41,297	45,279	2.91	4.33	—8.8	51,100,000	52,700,000	5.14	7.65	—3.0
$1,501–$2,000	10,456	10,009	.74	.96	+4.5	19,400,000	16,500,000	1.95	2.39	+17.6
$2,101–$3,000	7,629	9,977	.54	.95	—23.6	20,800,000	24,500,000	2.09	3.55	—15.0
$3,001 and over	2,774	4,027	.19	.39	—31.2	11,000,000	16,500,000	1.11	2.39	—33.4
Total	1,417,496	1,045,802	100.00	100.00	+35.5	$994,500,000	$689,300,000	100.00	100.00	+44.2
Miscellaneous	213	886								
Total	1,417,709	1,046,688								

U. S. New Car Registrations and Estimated Dollar Volume by Retail Price Classes—August

	UNITS					ESTIMATED DOLLAR VOLUME*				
			Per Cent of Total		Per Cent			Per Cent of Total		Per Cent
	1934	1933	1934	1933	Change	1934	1933	1934	1933	Change
Chevrolet, Ford and Plymouth	143,202	126,754	73.89	70.97	+13.1	$86,100,000	$68,300,000	65.68	60.82	+26.0
Others under $750	5,953	29,412	3.07	16.47	—79.8	3,800,000	19,000,000	2.90	16.92	+100.0
$751-$1,000	38,629	13,930	19.93	7.80	+177.0	31,200,000	11,800,000	23.80	10.51	+164.0
$1,001–$1,500	3,755	5,789	1.94	3.24	—35.1	4,700,000	6,700,000	3.58	5.97	—29.8
$1,501–$2,000	1,295	914	.67	.51	+41.8	2,300,000	1,500,000	1.75	1.33	+53.3
$2,001–$3,000	660	1,409	.34	.79	—53.2	1,800,000	3,500,000	1.37	3.12	—48.6
$3,001 and over	311	395	.16	.22	—21.3	1,200,000	1,500,000	.92	1.33	—20.0
Total	193,805	178,603	100.00	100.00	+8.4	$131,100,000	$112,300,000	100.00	100.00	+16.7
Miscellaneous	23	58								
Total	193,828	178,661								

* All calculations are based on list price F.O.B. factory of the five passenger, four-door sedan, in conjunction with actual new car registration of each model. The total dollar volumes for the different models are then consolidated by price classes.

GM Booklet Features Industrial Research

Kettering Believes We Verge on "Great Piece of Basic Information"

Industrial research in general and the activities of General Motors in that field in particular, are featured in an attractive and interesting pamphlet published last week by the corporation's research division.

In a foreword, GMR president Charles F. Kettering says: "I cannot help but feel that in a very short time we are going to break loose another great piece of basic information which will keep us industrially busy for a great many years to come."

According to the booklet, which is entitled "Research—An Eye to the Future," guesswork on automobiles has been largely eliminaed by three types of research: One is the laboratory research work of the engineers; another is the practical testing of the product at the proving ground; and third is the systematic questioning of car owners as to their needs and desires, known as customer research.

"So industry said to research: 'Why don't we form a new partnership? You can find the answer to my questions before I ask them—I can take the things you discover and spread their benefits all over America.'

"Industrial research," the booklet continues, "took the crude, unreliable automobile of 30 years ago, and made it so dependable, so easy to operate, so economical to build and buy, that America today owns more automobiles than all the rest of the world combined."

The fact that greater employment is one of the fruits of research is demonstrated in the booklet.

Waukesha Motor Co.

The annual statement of the Waukesha Motor Co. for the year ending July 31 shows a net income of $121,389 before dividends, leaving a surplus of $1,389 after dividends, compared with a deficit of $263,102 for the year ending July 31, 1933. Current assets at the close of business July 31 totaled $2,464,581 compared with $2,261,126 for last year. Total current liabilities at the close of business this year were $218,815, against $153,914 for last year. Working capital this year was $2,245,766 against $2,107,212 last year.

Current Assets	1934	1933
Cash	$340,920	$618,582
Liberty Bonds (cost)	.....	205,780
Accts., Notes Rec.	514,045	438,111
Inventories	1,609,617	998,654
Current Liabilities		
Accounts Payable	$97,574	$93,233
Accrued Expense	91,561	60,681
Tax Reserve	29,680	.....

Chevrolet Transfers

Transfers and promotions of field personnel in the east announced by the Chevrolet Motor Company are as follows:

At Harrisburg, L. M. Cary, formerly city manager at Philadelphia, becomes zone manager to succeed F. W. Williams.

At Pittsburgh, F. W. Williams becomes acting zone manager, succeeding A. H. Goodman.

At Tarrytown, N. Y., G. R. Weeks, formerly zone manager at Portland, Me., is appointed to succeed E. M. Nimnicht as zone manager.

At Baltimore, E. A. Nimnicht succeeds C. J. Peters as zone manager.

At Portland, Me., C. J. Peters is named zone manager to succeed G. R. Weeks.

Department of Justice Undecided in Houde Case

The Department of Justice has stated that it has not decided upon the procedure to be followed in prosecuting the Houde Engineering Corp., charged with violating Section 7A of the National Industrial Recovery Act. Reports have been published that the department had decided to prosecute the case civilly rather than criminally.

The case was referred to the department when the corporation declined to abide by a decision of the National Industrial Relations Board in which the board laid down the principle of majority representation, and gave to the automotive union of the Houde plant the exclusive right of collective bargaining.

Buick and Pontiac Urge Lighter Crankcase Oils

Buick and Pontiac working in concert have just issued a brochure for the motoring public urging the use of 10W and 20W crankcase lubricants this winter. The recommendation entitled "The Trend is Toward Lighter Oils" is believed to represent the position of all General Motors units on this subject.

In keeping with the semi-technical presentation, the treatise shows that somewhat higher oil consumption results from the use of a lighter oil. However, tabular data based on recent tests is offered as proof that light oils do not increase running costs, since the net result is a drop in fuel consumption.

As for specific recommendations, Cadillac-LaSalle calls for 20W between 32 deg. to 0 deg. F.; Buick, 20W from 60 deg. F. to zero, and 10W overlapping from 32 deg. to minus 15 Deg. F.; Oldsmobile, 20W between 32 deg. F. and 0 deg. F., 10W from 0 to minus 15 deg. F.; Pontiac, 10W from 32 deg. F. to zero, below zero 10W plus 10 per cent kerosene; Chevrolet, 20W around 32 deg. F., 10W from 32 deg. F. to 15 below.

Bohn Foresees Radical Changes First in High-Price Cars; Weight to Be Cut

Radical changes particularly in high priced cars are forecast for the newer future by Charles B. Bohn, president of the Bohn Aluminum & Brass Corporation. He says that in engineering and design the low-priced cars of today are farther advanced than the high-priced, and the difference in price is not warranted by difference in value as measured by performance and durability. Of course, the greater luxury of appointment of the high-priced cars and their prestige are important factors. Mr. Bohn continues:

"It is not so many years ago that the low-price car would not attempt to compete in acceleration, hill-climbing or other performance qualities with cars of higher price. Today that is no longer true. Due to a superior power-weight ratio the lower-priced cars are able to leave the higher-priced units at a standstill at the traffic light signals, and to actually outperform them in the hilly sections of the country. Buyers of high-priced cars will not tolerate this situation any longer than they have to."

Materials and engineering knowledge are now available to build automobiles that are far ahead of any now on the road. These resources will be turned first to the improvement of the higher priced cars, for one reason because the materials referred to are not being made in sufficient quantity as yet to warrant their use in low-priced vehicles.

The improved cars in the high-priced class, according to Mr. Bohn, will be made of light materials, probably aluminum, which will permit of reducing their weights by hundreds of pounds, and their engines will be able to operate at speeds of 4500-5000 r.p.m., so that the specific output will be greatly increased. Superior body design will assure greater roominess and comfort.

In this connection it is of interest to mention that the Bohn Aluminum & Brass Corporation has recently developed a new process for the manufacture of aluminum from alunite. Up till now practically all commercial aluminum has been produced from bauxite ores.

Aluminum produced from alunite is said to be purer, and the process also is claimed to reduce the cost of production. Potash is a by-product of the process and in a recent test of alunite taken from Utah mines the yield included 35 per cent of aluminum and 15 per cent of potash.

Five years of development work has been spent on the process so far. It is now planned to set up a moderate sized plant calling for an investment of about $50,000 in which some of the problems in connection with commercial production will be worked out. Equipment will be installed in a plant in Detroit which is expected to be in operation within 60 days. Subsequently a sheet and wire mill will be erected in Detroit and an aluminum refinery in a western state, probably Utah, where there are extensive alunite deposits. It is planned to form a separate company, financed at from 10 to 15 million dollars, to work the new process.

Traffic League Has 12-Point Truck Plan

Proposal to be Presented At General Membership Meeting in N. Y. Nov. 14

A twelve-point program for the regulation of interstate truck traffic is proposed in a report of the Highway Transportation Committee of The National Industrial Traffic League, approved by the Executive Committee of that organization, at a meeting held in Chicago. The report will be presented for a vote of the general membership of the League at its annual meeting, to be held in New York, Nov. 14 and 15.

The League's committee, in its report, states that it does not recommend any specific bill, but intends to judge such legislation as may be proposed on the basis of the twelve points contained in its report.

The Twelve Points

1. If legislation should contemplate federal regulation of interstate trucking rates, such rates should be judged by the costs and conditions of highway transportation without reference to the level of the rates required to be charged by the costs and conditions of other types of transportation.
2. Whatever policy of truck regulation may be adopted by the federal government it should be based on the maintenance and fostering of that type of transportation.
3. No attempt should be made arbitrarily to define the difference between contract and common truck carriers.
4. No regulation should apply to local transportation, even when interurban transportation may be between localities in different states.
5. Initial carriers should be made responsible for loss and damage to freight.
6. Operators in interstate traffic should be required to obtain certificates or permits.
7. Certificates or permits should not be revocable by any regulatory authority.
8. The regulatory body should have the power to suspend proposed interstate rate schedules and in such cases the burden of proof of the reasonableness of the rates should be on the parties filing them.
9. There should be uniform state legislation with reference to dimensions of trucks, loads and speeds of motor freight carriers.
10. Common carriers by truck should be required to carry liability damage and cargo insurance.
11. Common carriers by truck should be regulated both with reference to maximum and minimum rate; contract carriers with reference to minimum rates only; and there should be no regulation whatever of vehicles operated by owners or corporations not for hire.
12. Any proposed regulation should carry a clause excepting common and contract interstate trucking companies already in operation.

Preliminary to whatever regulation might be adopted by Congress, the committee recommended that the present code authority of the trucking industry require the filing of interstate trucking rates and the making of such rate files open to the public. It was also recommended that such practice of rate filing as well as truck registrations under the code be studied and that their practice under the code be considered an "experience" period from which data, useful in formulating legislation, may be developed.

Hupp Breaks Record In Impromptu Test

In an impromptu test on the Indianapolis brick speedway a stock Hupmobile six-cylinder sedan is reported to have eclipsed all existing class C stock car records for the 250-mile run by more than 15 miles per hour. The 250 miles was covered in three hours, nine minutes, fifty and eight-tenths seconds, representing an average speed of more than 79 miles per hour. A. E. Walden, of the Hupp engineering staff and a former racing driver, was at the wheel.

Kanik Joins A. O. Smith

Rudolph M. Kanik, production and engineering executive, has become associated with the A. O. Smith Corp., Milwaukee, in development work. He was associated with the Four Wheel Drive Auto Co., Clintonville, Wis., for many years, and participated in the development of the FWD truck. More recently he was president and general manager of the Moloch Foundry & Machine Co., Kaukauna, Wis.

AFL Head Plans Drive

(*Continued from page 425*)

Detroit area. We hope that out of our work in the coming months will come a better mutual understanding with management and the possibility of solving mutual labor problems by round table discussion on a cooperative basis. In our movement there is nothing in common with the philosophy of communism."

Questioned as to the functioning of the Wolman Board, Mr. Dillon would not commit himself except to say that it is functioning as well as it can under present limitations and circumstances. Most ALB cases still deal with discrimination, Mr. Dillon asserted. He expressed himself as diametrically opposed to proportional representation, saying that it is not in harmony with 7A nor with the findings of the National Labor Relations Board.

Mr. Dillon also said that one of their objectives "is to aid and train workers for the better things of life. We are developing study clubs at our locals on how to conduct meetings, how to negotiate with employers and instruction on such subjects as economics, etc. In addition, we plan to sponsor classes for workers in other subjects such as singing, music, and mathematics. This work is being financed by government appropriations under the FERA. Any citizen will, of course, be welcome to such classes."

Reed to Direct Purchases For All Auto-Lite Groups

E. H. Reed, general purchasing agent of the Electric Auto-Lite Co., has been promoted to the position of Director of Purchases of Auto-Lite and 17 affiliated companies, Roy G. Martin, president of the Electric Auto-Lite Co., announced this week.

Mr. Reed, who has been general purchasing agent of Auto-Lite for 20 years, will have entire supervision of all purchases for each of the affiliated plants, Mr. Martin said. All buying will be handled directly through Mr. Reed's office at the main plant in Toledo.

He will exercise personal supervision of buying for the Electric Auto-Lite in Toledo, its Fostoria foundry division; Electric Auto-Lite, Ltd., Sarnia, Ont.; USL Battery Corp., Buffalo, N. Y.; Pres-O-Lite Storage Battery Corp., Indianapolis; Moto Meter Gauge & Equipment Corp., Toledo and LaCrosse, Wis.; Burt Foundry Co., Toledo; Corcoran-Brown Lamp Co., Inc., Cincinnati; Owen-Dyneto Corp., Syracuse, N. Y.; Columbus Auto Parts Co., Columbus, Ohio; Southwest Battery Corp., Oklahoma City, Okla.; USL Battery, Ltd., Toronto, Ont.; Prest-O-Lite Storage Battery Co., Toronto; USL Battery Corporation of California, Oakland, Cal.; Concealed Door Check Co., Indianapolis; American Leather Products Corp., Indianapolis, and the American Enameled Magnetic Wire Co., Port Huron, Mich.

Nash Declares Dividend Despite 3rd Quarter Loss

Despite a net loss of $628,517 for the third quarter of the current year Nash Motors Co. has declared a dividend of 25 cents per share, payable Nov. 1 to stockholders of record Oct. 19.

C. W. Nash, board chairman, stated that the loss in the third quarter must be considered as the cost of a "very definite expansion program . . . which seeks as its major objective to advance our competitive position and to strengthen our dealer organization."

William A. Kirby

William A. Kirby, 56 years of age, for many years a manufacturing executive in the Fisher Body Corp., died last week following an eight months' illness. Mr. Kirby joined Fisher Body Corp. shortly after its organization, having previously been connected with the Wilson Body Co. and the Studebaker Corp. During the early days of the automobile industry he was closely associated with Fred J. and Charles T. Fisher. At the time of his death he was in charge of the Fleetwood Body division, and also held additional supervising posts in other Fisher plants. He is survived by his wife and a daughter, two brothers and two sisters.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

There was a further improvement in wholesale and retail lines last week. Wholesale orders from store chains and mail order houses were reported from 25 to 35 per cent above those a year ago. Industrial activity declined, with steel operations lower and pig iron demand dull. There was a moderate increase in business failures.

Car Loadings Increase

Railway freight loadings during the week ended Sept. 29 totaled 644,647 cars, which marks an increase of 1527 cars above those during the preceding week, a decline of 24,539 cars below those a year ago, and an increase of 22,989 cars above those two years ago.

Current Production Gains

There was a moderate increase in the level of electricity produced by the electric light and power industry in the United States during the week ended Sept. 29, although the output was 0.2 per cent below that a year ago.

Lumber Orders Low

Lumber orders during the third quarter of this year were 12 per cent below those in the corresponding period last year. New business booked was 11.5 per cent below production, and shipments were 2.5 per cent below production.

Crude Oil Production

Average daily crude oil production for the week ended Sept. 29 amounted to 2,402,100 barrels, which exceeded the Federal allowable quota by 60,400 barrels. The current average was 45,900 barrels below that for the preceding week and 44,750 barrels below that for the corresponding period last year.

Bituminous Output Steady

Production of bituminous coal during the week ended Sept. 22 amounted to 6,940,000 tons, as against 6,958,000 tons during the preceding week and 6,695,000 tons during the corresponding period last year.

Anthracite Production Up

Production of Pennsylvania anthracite coal during the week ended Sept. 22 amounted to 1,072,000 tons, which compares with 957,000 tons during the preceding week and 1,111,000 tons a year ago.

Fisher's Index

Professor Fisher's index of wholesale commodity prices for the week ended Oct. 6 stood at 79.7, as against 80.1 the week before and 80.2 two weeks before.

Federal Reserve Statement

The consolidated statement of the Federal Reserve banks for the week ended Oct. 3 showed a decrease of $5,000,000 in holdings of discounted bills and an increase of $1,000,000 in holdings of government securities. Holdings of bills bought in the open market remained unchanged.

Bus and Truck Relations To Safety, Study Subject

A special committee of the Chamber of Commerce of the United States has been set up to study the relation of trucks and buses to safety and highway traffic. The study has been undertaken in response to a demand from the Chamber's membership for a reasonable basis for eliminating wide diversity of standards among the several states. It is expected the committee's recommendations will be ready for consideration by legislatures convening early in 1935.

The members of the committee are:

David F. Edwards, president, Saco-Lowell Shops, Boston; William G. Fitzpatrick, vice-president, Eastern Michigan System, Detroit; Mark Graves, New York's commissioner of taxation and finance, Albany; L. O. Head, president Railway Express Agency, New York; Eric A. Johnston, president, Brown-Johnston Company, Spokane; L. J. Larzelere, president, Farquhar Machinery Company, Jacksonville; P. W. Litchfield, president, Goodyear Tire and Rubber Company, Akron; A. M. Matson, managing director, Butler Brothers, Dallas; William T. Nardin, president, Pet Milk Company, St. Louis; J. J. Pelley, president, the New York, New Haven and Hartford Railroad, New Haven; Professor Robbins B. Stoeckel, Hartford; A. H. Swayne, vice-president, General Motors Corporation, New York; O. S. Warden, publisher, *Great Falls Tribune*, Great Falls, Mont.

Wis. Dealers' Suit Tests NRA Code and State Act

A friendly suit seeking to determine the constitutionality of the Wisconsin Recovery Act and the Motor Vehicle Retailing Code, particularly the validity of the used car allowance provisions, has been filed in the circuit court of Dane County at Madison, Wis., by four automobile retailers, namely, Edwards Motor Co., Bailey Motor Car Co. and King-Braeger Co. of Milwaukee, and the Henneman Motor Co. of Chippewa Falls, Wis. While it is hoped that a determination can be made in circuit court in time to have the case heard by the Supreme Court on appeal early this fall, the attorney general has requested the Supreme Court to accept original jurisdiction for an immediate determination, eliminating the necessity of a trial in the lower court and subsequent appeal.

The dealers' complaint contends that the provisions of the code, more especially Article IV, specifying used car allowances, and Act V, fixing marketing rules on new cars, constitute unlawful delegations of legislative authority to the executive branch of the government. It is declared that Article IV fixes prices of a lawful commodity by arbitrary and unlawful methods. The action is one for declaratory relief, since great difficulties have been experienced by the code authority in securing compliance. At the same time the complaint declares that all dealers in Wisconsin are in doubt and confusion as to how to conduct their business pending interpretation of the act.

NAM Seeks Views On Self-Government in Industry

An effort to obtain a cross-section of industry's view on the problem of self-government in industry is being made by the National Association of Manufacturers in a questionnaire being sent to thousands of industrialists throughout the country. This is the first attempt to obtain such an expression of opinion prior to the opening of the next Congressional session.

Rootes, Ltd., Acquires Karriers Motors Control

The assets and the good-will of the business of Karriers Motors of Huddersfield, one of the oldest British manufacturers of commercial vehicles, has been acquired by Rootes Securities, Ltd., who also control three other concerns in the British motor vehicle industry, viz., Humber Ltd., the Hillman Motor Co., Ltd., both of Coventry, and Commer Cars, Ltd., of Luton.

Canadian Car Sales Drop

Sales at retail of new passenger cars, trucks and buses in Canada for Aug., 1934, show an increase of 32.9 per cent in numbers, and 38.2 per cent in value as compared with Aug., 1933. There was a total of 5192 new vehicles sold for $5,311,715 in August; 6542 for $6,678,- Aug., 1933.

Cottage Where Henry VIII Courted Anne Boleyn To Be Rebuilt By Ford

The trysting place of Bluff King Hal and Anne Boleyn — a cottage near Chelmsford, Essex, England—is to be preserved to posterity by Henry Ford. The cottage, the only home the beautiful Anne ever owned, and known as Bull's Lodge, was discovered about six years ago in ruins by a south country shepherd who took his flocks to graze in the surrounding pastures. Mr. Ford, who owns the land on which the cottage stands, has ordered the place restored to its original condition, according to the Detroit Free Press and London Express.

Exploring the ruins the shepherd found a subterranean passage leading to an old castle which today is a girls' school. It was to this castle that Henry VIII came, a day's journey from London then, now an hour's trip, while he was courting the beautiful Anne and changing the course of English history. It is believed the king used the underground passage to visit Anne in her home. The area in which the house stands has additional historical significance, for it was in the surrounding fields that the Crusaders pitched their first camp on their way to the Holy Land in the Middle Ages.

Today, and after its complete restoration, the cottage will be occupied by workers on Mr. Ford's farm. The shepherd who found the place, lying behind a tangle of country lanes, gave up his flocks to enter the employ of the Dearborn magnate.

Brake Lining Code Authority Reelected

Brake lining manufacturers reelected their Code Authority members at the recent annual meeting of the industry, retaining in office the men who have administered the code for the manufacturers during the past year.

The officers reelected were: W. C. Dodge, Jr., of Keasbey & Mattison Co., chairman of the Sub-Code Authority of the Brake Lining Division and division member of the Asbestos Code Authority; M. F. Judd, of Raybestos Division of Raybestos-Manhattan, Inc., member of the Sub-Code Authority; A. B. Kempel, of Rex-Hide, Inc., member of the Sub-Code Authority; D. R. Weedon, of Keasbey & Mattison Co., treasurer; W. J. Littlefield, secretary-general manager.

The Brake Lining Manufacturers' Association held its annual meeting concurrently with the industry meeting and elected the following officers for the coming year:

W. C. Dodge, Jr., Keasbey & Mattison Co., president and member of the executive committee; A. B. Kempel, Rex-Hide, Inc., first vice-president and member of the executive committee; H. A. Gillies, American Brakeblok Corp., second vice-president and member of the executive committee; D. R. Weedon, Keasbey & Mattison Co., treasurer and member of the executive committee; W. J. Littlefield, secretary. Additional members of the executive committee are: M. F. Judd, of Raybestos-Manhattan, Inc.; T. L. Gatke, of Gatke Corporation; J. C. Johnston, of Atlas Asbestos Corp.; G. M. Williams, of Russell Mfg. Co.

Wayne Co. September New Car Sales Decline

While September new car registrations in Wayne County, Mich., dropped nearly 2000 below the Sept., 1933 total, according to the Detroit Auto Dealers Association, the year-to-date total for 1934 is approximately 11,000 ahead of the first nine months of last year. September registration of new cars totaled 2078 against 3974 for the same month last year. The total for the January-September period this year is 49,861 against 38,737 for the same months of 1933.

However, registrations of new trucks for last month showed an increased slightly under 100 vehicles, while the year-to-date total more than doubled. During September of this year there were 379 new trucks registered compared with 296 for the same month last year. The year-to-date total for the nine months of 1934 is 4734 against 2097 for the January-September period of last year.

Cincinnati Milling Mach. 50 Years Old This Week

The Cincinnati Milling Machine Co. celebrated the 50th anniversary of its founding with special ceremonies this week. The anniversary was commemorated by setting aside this period as "open house" during which customers and the public were invited to inspect the plant and observe practical demonstrations of the products manufactured by the company. There also was a special program arranged for the employees.

Code Authority Approved

The NRA has announced recognition of the following code authority membership for the replacement axle shaft manufacturing industry: W. C. Bulette, Brandt-Warner Mfg. Co., York, Pa.; W. D. Foreman, Prop. W. D. Foreman, Chicago; C. H. Davis, The Spencer Mfg. Co., Spencer, Ohio; George C. Lees, The U.S. Axle Co., Inc., Pottstown, Pa.; T. R. Navin, Republic Gear Co., Detroit.

CALENDAR OF COMING EVENTS

SHOWS

Cleveland (Automotive Service Industries) .....Nov. 19-23
New York Automobile Show.....Jan. 5-12
Chicago Automobile Show...Jan. 26-Feb. 2
Automobile Merchants Assoc. of N. Y., Automobile Show .....Jan. 5-12, 1935
Washington Automotive Assoc., Automobile Show .....Jan. 12-19, 1935
Automobile Trade Assoc. of Maryland—Baltimore—Automobile Show.Jan. 19-26
Philadelphia Automobile Trade Assoc. —Automobile Show .....Jan. 14-19
Boston Automobile Dealers Assoc.—Automobile Show .....Jan. 19-26
Los Angeles Automobile Show.....Jan. 5-13
Columbus, Ohio Automobile Show Jan. 19-24
Kansas City, Mo. Automobile Show Feb. 9-16
Denver, Colo. Automobile Show..Feb. 10-23
Evansville, Ind Automobile Show.Feb. 23-27

MEETINGS

Natl. Aeronautic Association Meeting, Washington, D. C. .....Oct. 11-13
American Trucking Association, Chicago .....Oct. 22-24

ANNUAL MEETINGS

American Power Boat Association—Hotel Lexington—Annual .....Oct. 25
Society of Automotive Engineers—Annual Meeting—Detroit.....Jan. 14-18
Society of Automotive Engineers—Annual Banquet—New York .....Jan. 7
Automotive Parts & Equipment Mfrs., Inc.—Annual Meeting—Chicago.Jan. 29
Natl. Automotive Parts Assoc., Detroit .....Nov. 13-17
Motor & Equipment Manufacturers Assoc., Cleveland .....Nov. 19-23
Natl. Standard Parts Assoc., Cleveland .....Nov. 16-17
Motorcycle & Allied Trades Assoc., New York City .....Jan. 9
American Engineering Council, Washington, D. C. .....Jan. 10-12
American Roadbuilders Assoc., Washington, D. C. .....Jan. 22-25

CONVENTIONS

Natl. Wholesale Hardware Assoc. Annual Convention—Atlantic City. Oct. 22-25
International Foundry Congress, Philadelphia .....Oct. 22-26
American Foundrymen's Assoc., Philadelphia .....Oct. 22-26
Motor & Equip. Wholesalers Assoc. Annual Convention—Cleveland, O. Nov. 16-17
National Foreign Trade Council, New York .....Oct. 31-Nov. 2

EXPOSITION

Natl. Exposition of Power & Mechanical Engineering (Biennial) New York, N. Y. .....Dec. 3-8

FOREIGN SHOWS

London International Automobile Show Oct. 11-20
International Aeronautic Exposition, Paris, France .....Nov. 16-Dec. 2

Clyde R. Paton, Col. Vincent and Mrs. Vincent seemed to do a good job on maintaining their equanimity while the Tigers were making errors

Automotive L at th World's S

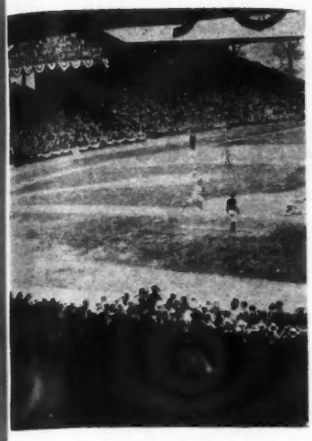
Harlow H. Curtice, general manager, Buick Motor Company, had as his guest, R. S. McLaughlin, president, G. M. of Canada

J. M. Crawford, chief engineer Chevrolet Motor Co., with Mrs. Crawford, as Henry Greenberg knocked a home run

Claire L. Barnes (rear center) took a day off from worries about the Houde case and watched the Tigers drop the opener

The Fisher Brothers were in evidence during both of the opening games. Here are (below) E. F. Fisher, and (above) W. A. Fisher, center, with Mrs. Fisher and their son, Lewis A. Fisher (to the right)

C. P. Fisken, advertising manager, Chevrolet Motor Co., was there early



Leaders at the Series

Will Rogers and Henry Ford talked things over between innings. Edsel Ford is at the right

K. T. Keller, president Dodge Brothers, was among the Chrysler contingent at the game

H. J. Klingler, general manager, Pontiac Motor Company, was among the ardent Tiger rooters

O. E. Hunt, vice-president in charge of engineering, General Motors Corp., and Mrs. Hunt were among the early arrivals at the opening game.

Robert Graham, vice-president in charge of sales Graham-Paige Motors Corp., seemed to enjoy himself thoroughly. "It seems to me though that the Tigers need super-chargers," Mr. Graham said

L. Clayton Hill, president, Dietrich, Inc., thoroughly enjoyed Al Schacht's antics before the game

The Chrysler engineering triumvirate, Fred Zeder, Carl Breer and O. R. Skelton (left to right) were among the Tiger rooters.

Production Men Talk Equipment Broaching and Cutting Oils at

THROUGH the cooperation of the Detroit Section, the national Production Activity of the SAE staged an outstanding Production Meeting in Detroit this week—Oct. 10 and 11. The technical sessions featured four papers dealing with questions of immediate importance to factory executives, while the dinner meeting was given an impressive touch by R. H. Grant, vice-president of General Motors, whose speech is reported elsewhere in this issue.

Thomas C. Van Degrift and John M. Tyler, both of General Motors Research, collaborated on a comprehensive treatment of "Balancing Problems in Automotive Engineering," dealing largely with the static and dynamic balance of power plant parts and units.

According to the authors, the requirements of a good balancing machine are:

It must be sensitive enough to indicate the unbalance with an accuracy of plus or minus less than one-fourth of the balancing limits; the reading of both amount and location of the unbalance should be immediately indicated when the machine is started, so that a high production can be obtained; the unbalance should be indicated without the necessity of an adjustment of the machine for each part being balanced; the part being balanced should not be distorted due to high speed whip; the operation of the machine and the reading of the unbalance should be simple enough to allow an inexperienced man to learn to use the machine in a few minutes; the complete reading of unbalance should be taken without removing the part from the machine; the handling of the shaft in putting it into the machine and taking it out should be simple and easy, and it should be possible to check the balance of the part in the same machine used to read the unbalance.

Thomas C. Van Degrift
G.M.C. Research Division

The unbalance of an assembled engine is the accumulation of the unbalance from many different sources, and the authors recommend the checking of every rotating and reciprocating part, even the small parts which are machined all over. Unbalance may also creep into the assembly at points of sliding fits, such as the pilot for the clutch pressure plate and fittings on spline shafts.

The following is a list of commercial balance limits which may be found in a production engine. Summing up the total unbalance, on the basis that all come on the wrong side of the limit, total unbalance will be 9½ oz. in. at the rear and 3½ oz. in. at the front. With a car running at 70 m.p.h., the authors estimate that 9½ oz. in. of unbalance would produce a shaking force of 200 lb.

This is an alarming possibility, since even 2 oz. in. of unbalance is considered annoying. But the speakers conclude philosophically that the laws of probability will protect us against having all unbalance come in the same direction. The list of balance limits follows:

(1) Unbalance in the crankshaft may be .75 oz. in.

(2) Unbalance in the flywheel (½ oz. in.) plus the product of the weight of the flywheel (75 lb.) and the eccentricity of its pilot (.001), giving a total of 1.7 oz. in.

(3) Unbalance of the clutch housing (½ oz in.) plus the product of the weight of the clutch housing (20 lb.) and the sum of the eccentricity of the clutch pilot (.004 in.) and the flywheel pilot (.001), giving a total of 2.1 oz. in.

(4) Unbalance of the clutch pressure plate (½ oz. in.) and the unbalance introduced by clearance around the clutch pressure plate, which is the product of the weight (10 lb.) of the clutch pressure plate (10 lb.) and the sum of its clearance (.005 in.), the clutch pilot (.004 in.) and the flywheel pilot (.001 in.) giving a total of 2.1 oz. in.

(5) Unbalance of the clutch disk (¼ oz. in.) plus the product of the weight of the clutch disk (2 lb.) and the clearance of the spline pilot (.003 in.) giving a total of .35 oz. in.

(6) Unbalance due to the variation of the weight of the lower end of the connecting rods (1/16 oz.) assuming a

Buying, Balancing, Detroit SAE Meeting

W. H. McCoy
General Motors Corp. was chairman of the meeting

stroke of 3 in., plus the product of the weight of the lower end of the connecting rods (1 lb.) and the variation in radius of the crank pins (.010), giving a total of .34 oz. in.

(7) Unbalance introduced by variation of angular position of the crank pins (± .005) gives .08 oz. in. for the shift of the lower end of each connecting rod.

(8) Unbalance introduced by variation in weight of the reciprocating parts (1/16 oz.) assuming a stroke of 3 in., plus the product of the weight of the reciprocating parts (2 lb.) and the variation in radius of the crank pins (.010) giving a total of 5 oz. in.

(9) Variation in the angular position of the crank pins (.005) also introduces additional unbalance of the reciprocating parts of .16 oz. in.

(10) Additional rotating masses, such as the fan belt pulley (¼ oz. in.) the torsion damper (¼ oz. in.), etc., introduce additional unbalance.

J. E. Padgett, Spicer Mfg. Co.

One of the best economic studies of the cutting fluids problem in metal cutting plants is provided by W. D. Huffman, Chevrolet Gear & Axle Co., in his paper, "Cutting Oils and the Fundamental Characteristics in their Selections." Mr. Huffman notes first the two general types of oils—soluble or emulsifying and the straight cutting oils, of which the latter offer a wide range of composition and a still greater field for individual preference.

The author sees an immediate need for some degree of standardization particularly in a better knowledge of the utilization of these materials. It is felt that considerable economy will result from better utilization and simplification in specifications. Laboratory control is felt to be the most important activity in this direction since the best job can be done only through the cooperation of the laboratory and the shop.

According to Mr. Huffman, the following characteristics control the proper selection of cutting fluids:

(1) Soluble Cutting Oils
  (1) Ability to emulsify.
  (2) Tendency to remain stable without separation.
  (3) Tendency to prevent corrosion and give satisfactory finish.

(2) Non-Emulsifiable Cutting Oils
  (1) Quantity and nature of saponifiable material.
  (2) Quantity of combined sulphur not in natural combination.

"From this summary, it would seem reasonably logical that if the supplier and consumer could meet on common grounds, it might remove a great deal of misunderstanding and superstition that now exist in the manufacture, purchase and use of these materials."

The paper concludes with an urgent plea for a special committee set up to investigate all phases of the cutting fluid problem. The suggestion opens up an important field of investigation and one which should be encouraged in the interest of the manufacturing industry.

J. E. Padgett, Spicer Mfg. Corp., chose as his topic, "Machinery and Equipment Policies in View of the Present Business Situation" turning the matter over in all its controversial aspects. Like the other papers read by this author on occasion, this one bristles with thought-provoking argument.

Among other things, Mr. Padgett points to the uncertainty of business and particularly the impacts

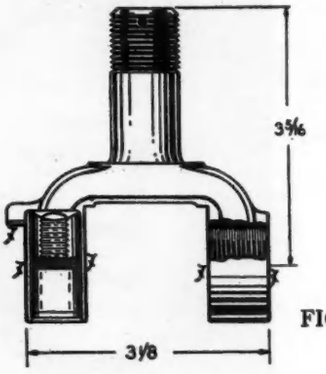


FIG. 1

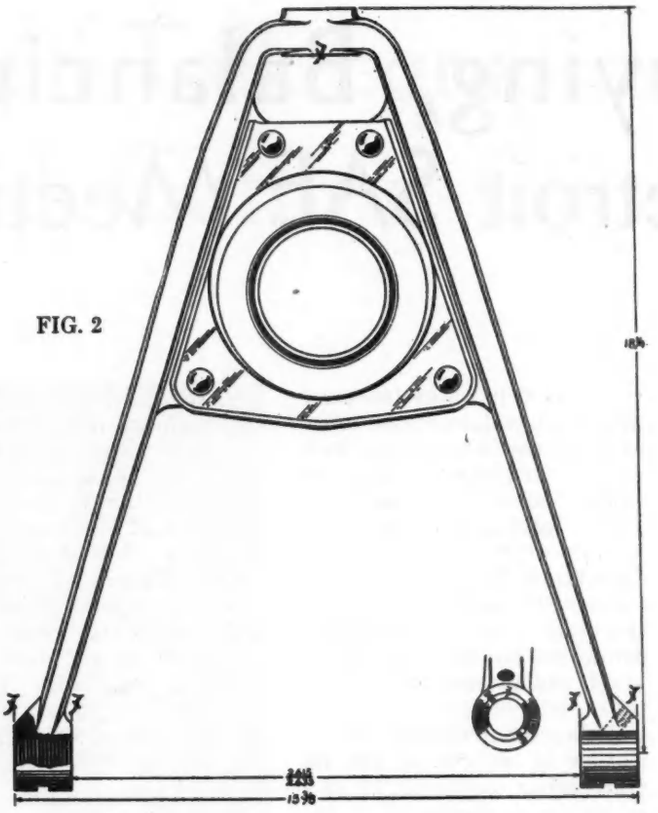


FIG. 2

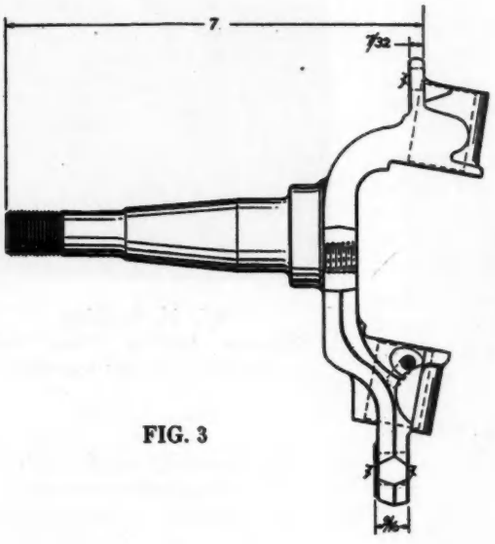


FIG. 3

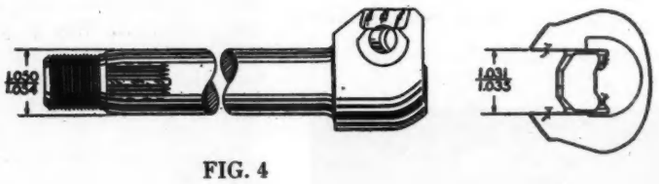


FIG. 4

of governmental activity such as the NRA, price control policies, etc., which have every thinking person on edge.

"The new income tax ruling which changes the method of computing depreciation for income tax purposes," said Mr. Padgett, "will probably change many former cost systems and will cause a different viewpoint when new purchases are contemplated. In brief, this new ruling requires that at the present time, each machine will be checked and its probable remaining useful life in years determined, and from this number of years of future life and the actual number of years of past life a rate of depreciation will be determined, and this rate will be effective during the remaining life of the machine. I believe that this kind of a consideration will radically change many of the past practices in the matter of machinery purchases. Statistics indicate that the vast majority of businesses have set up depreciation rates that are altogether too low to take care of normal replacement in order to inflate current operating statements. Where insufficient rates have been effective for a number of years the new tax ruling is going to be unfortunate because the manufacturer will be unable to use the difference between his high book value on the equipment and the lower value created by the new income tax set up, as an offset in the calculations of his earnings for future income tax purposes. In general, I believe the result of this will be an increase in depreciation rates and a consequent increase in the unit value of fixed charges carried into product cost through the burden account.

"I believe, in the matter of machinery," continued Mr. Padgett, "that, for long time planning, equipment should be purchased in the most sparing fashion when productive operations are high, and should be purchased in the greatest amounts after passing the bottom of a depression, because these purchases will prepare the business for correct low cost, successful manufacture during ensuing expansion, and will also take advantage of all of the developments and inventiveness that is forced out during hard times. This is probably the course that would be taken at this time by the successful future businesses if the normal, economic cycle were left to itself and this would tend to start business and prosperity on the upgrade. I believe that if we can change the Government's attitude so that it will allow the normal operation of economic law, we will rapidly get into this kind of a cycle

with general good to everyone, but it will take definite concerted action on the part of everyone, who can think clearly, to swing the trend into this proper course."

"Production Experience with Surface Broaching," by E. S. Chapman, Chrysler Amplex Division, is perhaps the first important paper on the subject to give actual production data and costs on specific jobs. The figures are based upon the experience in the production of parts for several hundred thousand cars and are therefore considered rather dependable data.

Referring to the illustrations, the yoke shown in Fig. 1 is a heat treated forging requiring stock removal on the four boss surfaces. 300 pieces per hour are produced on a continuous rotary broaching machine. High speed steel broach sections are used and broaching speed is 8 ft. per min. At the end of the period covered by this study, the broach cost per piece was averaging $.0036. A good production milling machine set-up was also in use during a large portion of this period and, for purposes of comparison, the milling cutter cost per piece was $.0128.

"This broach cost is a very marked decrease from our experience during the first few weeks of the job, as this was the first installation of its kind and a great deal had to be learned from experience, about the proper steps between the broach teeth, the disposal of chips and coolant, and the details of the holding fixtures to resist the very heavy and varying pressures of the cut."

The broach life in this instance varies from .0625 in. to .125 in. for the different positions, and an average of about 5000 pieces per grind is accomplished.

The wishbone forging in Fig. 2 is broached in two handlings, the first is to finish the four sides of the leg bosses, the second is the broaching of the inside face of the center boss.

E. S. Chapman
Chrysler Ampex Division

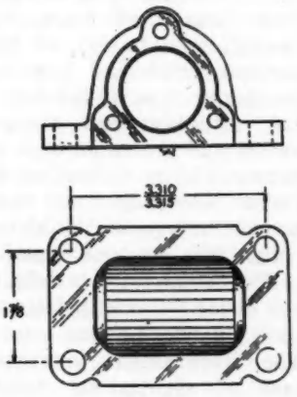


FIG. 6

Output on the first operation, using single ram vertical machines is 111 per hour. Broach cost per piece averaged $.0023. The second operation also produces 111 per hour, broaching speed being 44 ft. per min. in each case. The average broach cost per piece on this operation is $.0023. The broach life is .0625 in. Fewer broaches are required per set-up than in the first operation, but the shorter total life accounts for a nearly equal broach cost per piece.

"This operation is a good example of the possibility of broaching surfaces almost impossible to mill on a production basis as there is insufficient room for a milling cutter or arbor, and about the only alternative would be a back spotface operation, which would be unsatisfactory."

The steering knuckle in Fig. 3 is handled on two different machines both doing the same work; one is a vertical duplex machine with one broach cutting alternately, the other is a vertical duplex machine with both broaches cutting simultaneously. The first machine produces 158 pieces per hour, the second 240 per hour.

Broach cost per piece is $0.00218, while the best previous milling cutter cost was $0.0203.

The steering gear cross shaft in Fig. 4 has a broached slot, the broach also producing the relief at the lower corners, 125 pieces being finished per hour. Average broach cost per piece is $0.00125. "This is a good broaching job, difficult to handle satisfactorily in any other manner, and we have had cases of broaches running over 140 hours, or about 20,000 pieces, without removal for grinding. In this case, as in all others mentioned

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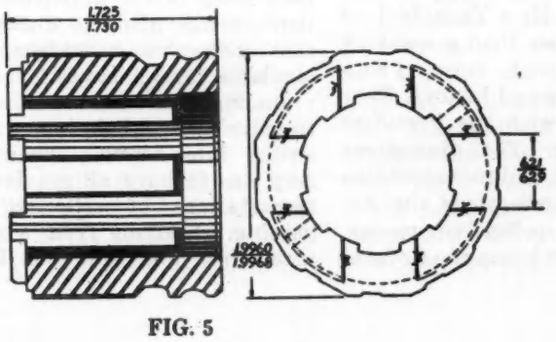


FIG. 5

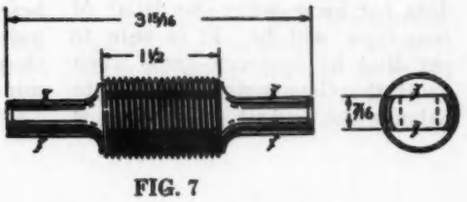


FIG. 7

The Horizons of B

TOM M. GIRDLER, president of the Republic Steel Company, provides a text that goes far to answer the question now being asked by a swelling chorus of business men, bankers and investors. "What's wrong with business?" Here is the steel executive leading off with a circuit clout.

"We cannot forever sit on the fence crying inflation for the benefit of those who owe money and stabilization for the benefit of those to whom money is owed. . . . I have no argument to make either in favor of inflation or against inflation. That isn't the point. The point is, which way are we going, and how far? I want to know what the Government intends to do with my dollar. When I know that, I can plan accordingly."

Business Craves a Little Security

Mark well that last sentence, "When I know that, I can plan accordingly." Business is now in a position where it is expected to play ball while the most important rules of the game are in suspense or, in effect, may be changed during the game at the discretion of an official. The record abounds in illustrations. In the field of inflation, fiscal policy, labor relations, relief, foreign trade, the AAA and the NRA, the Government's position has been so thoroughly "experimental" that no business man knows from one day to the next whether he will be expected to run toward third base when he hits the ball, to hug the umpire or pay a fine.

Mr. Girdler protests that he does not know what the dollar of tomorrow will be. It is safe to say that he does not know when or if the Government intends to balance the budget, how much it will invest in recovery, what largesse will be distributed in the form of relief, what "collective bargaining" means, what tricks the Treasury will play with foreign exchange, how far agricultural regimentation will go or what the NRA will do to his business.

Birth of the Rubber Dollar

He has done well to start off with inflation. When the New Deal sun broke upon this discouraged land in March, 1933, the vaults of our banks, the Government mints and the Treasury held more gold in the aggregate than any other nation had ever possessed. The yellow metal was nationalized and the rash citizen who defied the Government was declared by *ex post facto* statute to be a felon. The official argument was that there was not enough gold to pay all the obligations which had incurred that particular type of liability. That this situation had always prevailed and that gold once used in payment of an obligation, like the Indian who fought and ran away, would survive to liquidate other obligations was not explained.

The demand for a definition of our dollar became insistent at the time of the London conference. The Government entrusted the task of negotiating stability to Doctor Sprague of Harvard and Mr. Harrison of the Federal Reserve Bank of New York, both of whom have more than a speaking acquaintance with monetary theory, practice and history. They had a huddle with the President before leaving. The discussions were in English and these two men thought they understood the Administration's policy on money. Their failure to grasp the Government's position was fully revealed the moment they announced the possibility of an accord with France and England.

A Study in Flexibility

More important perhaps than either the content of the dollar or the duration of the deficit period is the uncertainty that surrounds "collective bargaining" in 7A. This vexatious phrase intruded itself upon business in the early days of the New Deal. To give a "plain meaning," Johnson and Richberg defined it in August, 1933. They seemed to think that it meant proportional representation and not the exclusive exercise of bargaining power by the majority.

On the 1st of February of this year the President offered an interpretation which was hardly clear but led labor to believe that collective bargaining meant majority representation.

Whereupon Johnson and Richberg interpreted the interpretation. When they finished there was a difference between the practical and theoretical meaning of the phrase. Theoretically all groups should be represented. Practically this might be difficult at times.

On March 1 the President in the Denver Tramway case came out as clearly as possible for the proportional theory and adhered firmly to this interpretation throughout the entire month, so that labor in the automobile settlement was made to understand that collective bargaining was available for all hands.

During the summer the National Labor Relations Board swung into action. Their first step was to burn all previous interpretations of collective bargaining. Starting from a *tabula rasa*, they told first the Tubize

ofBusiness

by Joseph Stagg Lawrence

Chatillon Rayon Company at Hopewell, Va., and then the Houde Engineering Company at Buffalo that the majority controlled.

At this point the President made a contribution to the effect that collective bargaining might mean proportional or majority representation. On Oct. 4 Donald Richberg declared that the interpretation which he and Johnson made 14 months before was still good.

What are the rules? When business men know them they "can plan accordingly."

Dear to the Heart of the Tories

Next to the dollar and partly because it is intimately bound up with monetary stability is the budgetary policy of the Government. The recent fireside chat of the President failed to mention the subject. Some effort was made to prove that England's prosperity, insofar as it may be admitted, owed a great deal to the adoption of certain far-sighted innovations, such as unemployment insurance, the recognition of collective bargaining and the abandonment of gold. Unfortunately for this flattering analogy, Mr. Neville Chamberlain, Chancellor of the Exchequer, had occasion within 48 hours to render an informal accounting of English recovery to the business leaders of Great Britain. He seemed to think that balancing the budget and avoiding the schemes of "liberal" English economists who found a more sympathetic audience on this side of the Atlantic had something to do with the gratifying state of English prosperity.

Here again the statement of Mr. Girdler may be paraphrased to apply to the budget, "I will not make an argument at this point in favor of or against balancing the budget, this year or next, or even for the following year. I will not dispute the harm or virtue in a total recovery deficit of five or ten or even fifteen billions. I would like to know how much the final cost will be and when the Government can be expected once more to live within its means."

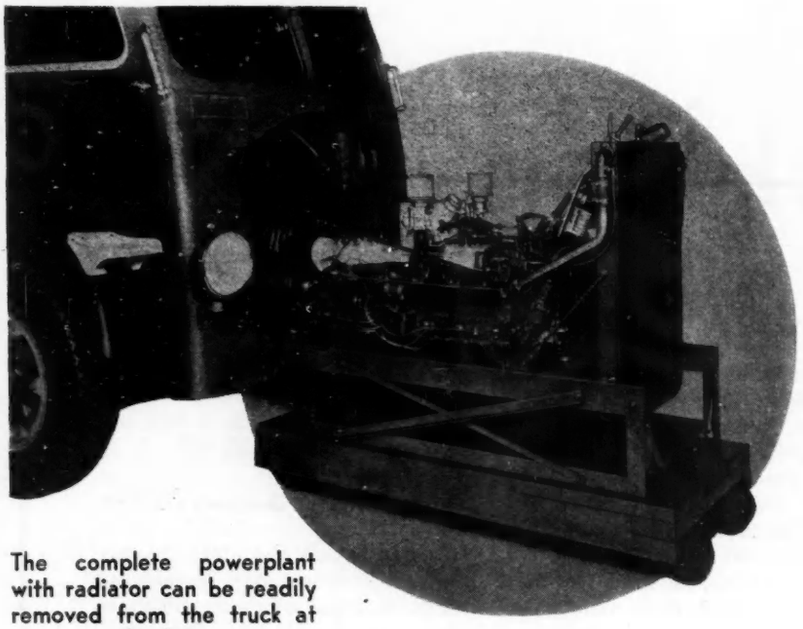
Spending Our Way into Prosperity

Casuistry probably attains its most glittering reaches in the arguments for a deliberate deficit. Argument one. The excess of expenditure over revenue is a net addition to the nation's spending power than which the country needs nothing more. Argument two. The depression is a grave national emergency, in a different way, far more acute than the Great War. We spent 56 billion in that conflict, shed the vital blood of 233,000 Americans, and have nothing to show for it except a bad headache, a bundle of IOU's and the querulous recriminations of the allies whom we tried to help. The expenditures of the New Deal, which are but a fraction of the outlay for the war, are a sharp contrast. In return we are achieving recovery, raising living standards, mitigating distress and rapidly acquiring enduring monuments in the form of highways, new school buildings, power dams, etc. Business leaders, of whom Mr. Girdler is representative, are not disposed to pick at these contentions. They will tolerate where they will not approve, a doubling of the public debt and the load of future taxation which this implies. Wars, they beg to note, come to an end. When politicians once acquire the habit of distributing billions and voters accustom themselves to the soothing assurance of regular Government checks where will it stop? Business men would like to know what the bill will be.

An International Guessing Contest

Professory Moley was hastily dispatched to set our blundering delegates right after an intimate *tete a tete* with the President. However, events moved so rapidly that Doctor Moley, by the time he became articulate in London, found himself striking utterly dissonant cords. These slow-witted fellows simply could not adapt themselves. It was necessary for the President to extend a sharp reproof to the London conference for leading our delegates astray. He likewise "improved the occasion," as writers of another generation were wont to say, by defining the Government's monetary objective as the restoration of the dollar's buying power to the 1926 level.

To trace the policy of the Government through the gold price-raising days of last fall, the passage of the Gold Reserve Act of 1934, the use of the Thomas amendment to the Agricultural Adjustment Act, the Silver Purchase Act, the use or abuse of the two billion stabilization fund and the administrative compliance with the terms of the Silver Purchase Act, is a separate story. These developments can best be described as a movement from the clear to the confused. It alters a dollar which was once exchangeable for 23.22 grains of pure gold into a dollar which is an unequivocal promise to pay nothing in particular at an indefinite date in the future. Mr. Morgenthau summed up the situation expertly when he said: "We are operating on a 24-hour basis." That's what business seems to be doing.



The complete powerplant with radiator can be readily removed from the truck at the front

NEXT WEEK Automotive Industries will describe the manufacture of the White Pancake engine in an article by Joseph Geschelin entitled "Unique Production Set-Up Gives Mass Production Economies on Daily Output of 16 Pancake Engines"

White Introduces Cab-over with 12-Cylinder Pancake

TWO large, heavy-duty, cab-over-engine truck models equipped with twelve - cylinder horizontal - opposed engines have been introduced by the White Company of Cleveland. They are known as Models 730 and 731, the former having a single-reduction and the latter a double-reduction final drive. Both are unusually short, considering their gross-weight ratings of 26,000 and 30,000 lb. respectively. The twelve-cylinder flat engine is mounted under the floorboards, where it is said to be quite accessible. Outstanding performance would naturally be expected from an engine with this number of cylinders, and some performance figures are given at the end of this article. Driver comfort is assured by a roomy, well-ventilated, "streamlined," all-metal cab.

The horizontal engine is similar in design to the twelve-cylinder bus engine brought out by the White company about two years ago, but smaller. It has a bore of 3⅝ and a stroke of 3¾ in., making its displacement 465 cu. in. The short stroke makes for low piston speed, low inertia forces, and a more rigid crankshaft. A compression ratio of 6.5 to 1 is used, which seems very high for an engine with cast-iron pistons and cylinder heads but is said to be rendered practical by a specially shaped combustion chamber. The engine develops 131 hp. at 2800 r.p.m. and 124 hp. at 2400 r.p.m. A maximum fuel economy of 0.6 lb. per hp-hr. is claimed, which is the same as that of White six-cylinder truck engines.

Wet cylinder liners of a special grade of cast iron are inserted into the main engine block. The methods of sealing the joints at the outer and inner ends of these liners are illustrated by the sketches (shown on page 448). At the outer end the liner is provided with an external flange which enters a counterbore in the block. One corner of this flange is beveled off to make room for a copper-asbestos gasket. At the inner end the liner is a free fit in the bore of the block, and sealing is effected by means of three rubber rings, means being provided for draining off any water that may seep by the outer two of these rings, thus preventing it from getting into the crankcase. Since the liner is in metallic contact with the block over a very short length only, the likelihood of its rusting in place so it cannot be removed is said to be very remote.

With these liners, after the bore has worn sufficiently to make refitting advisable, the owner can get replacement liners together with pistons and rings of standard size, and the over-all cost of such an overhaul is said to be lower than that incurred if conventional cylinders were reground and fitted with over-size pistons and rings.

The crankshaft has seven main bearings of 2⅞ in. diameter and is forged with integral counterweights. It carries two connecting rod big ends side by side on each crankpin, the latter having a diameter of 2 7/16 in. Main and connecting-rod bearings are of the interchangeable steel-back, babbitt-lined type. The total projected area of main bearings is 39.5 sq. in. and the effective projected area, 30.9 sq. in. Pistons are of cast iron, of light design, and tin-plated for rapid wearing in. Piston pins are of the full-floating type, 1⅛ in. in diameter.

Inserted exhaust valve seats of the screwed-in and doweled type, developed by White, are used. The valves are located on the under side of the block, so that the valve pockets will be surrounded with water so

long as there is any in the cooling system, and burning of valves due to low water is practically eliminated. Intake valves have a throat diameter of 1½ in., exhaust valves of 1 13/32 in.

Since both cylinder banks and the crankcase are in a single casting, a high degree of rigidity is assured. At its rear end the engine is mounted in rubber on a subframe, which in turn has two rigid mountings at the rear and one rubber mounting at the front. In addition to the engine, the radiator is mounted on the subframe, and engine, transmission, emergency brake, and instrument board with all accessories can be removed from the truck as a unit.

All valves are actuated by a single camshaft located centrally below the crankshaft and driven from same through a train of three alloy-steel helical gears, case-hardened and ground. Belt drive is used for the generator, air compressor and water pump, and the double triangular drive is said to be so flexible that it can be adapted to a wide range of requirements. The radiator fan is driven directly from the end of the crankshaft, the hub of the fan being flexibly mounted on rubber. The water pump has an anti-friction outboard bearing to take the thrust load, and the pump bearing proper is automatically lubricated. This arrangement has the advantage that it reduces the number of points requiring attention for lubrication. These units are so arranged that they are rendered immediately accessible when the insulated floorboards at the side are removed, the boards having a special locking attachment and being so arranged that they can be either swung around on their hinges or removed. These same floorboards

SHORTER overall length—from 3 to 3½ ft. on the 730 and from 3½ to 4 ft. on the 731 as compared with conventional designs, smoother performance, higher average road speeds, faster acceleration, less engine wear because of short stroke and light weight of reciprocating parts, 1/3-2/3 load distribution and increased maneuverability, are some of the outstanding advantages advanced for the new White jobs described on these pages. A resume of some of the important features of these interesting new models follows:

	Model 730	Model 731
Gross weight	26,000 lbs.	30,000 lbs.
Engine type	Pancake 12	Pancake 12
Bore and stroke	3 5/8 x 3¾ in.	3 5/8 x 3¾ in.
Displacement	465 cu. in.	465 cu. in.
Brake horsepower	128 at 2,600	128 at 2,600
Max. torque, lbs. ft.	317 at 1,200	317 at 1,200
Road Speed	52.5 m.p.h. with 9.75 x 20 in. tires and 5.22 rear axle	38 m.p.h. with 10.50 x 20 tires and 7.5 overall reduction
Gross ability in high gear	3.62%	4.35%
Clutch	15¼ in. single plate	15¼ in. single plate
Transmission		
Standard	4-speed	5-speed
Option	5-speed	direct in high, or overdrive
Front axle tread	80 in.	80 in.
Rear axle type	Single Red.	Double Red.
Wheelbases		
Truck	108, 126, 144, 162, 180 in.	
Tractor	108 in.	100 in.

-Engine Jobs Power Plants

by P. M. Heldt

Engineering Editor, Automotive Industries

Forward part of White cab-over-engine truck, showing accessibility and general form of cab

give access to the distributor, spark plugs, coils, etc.

Lubrication is by the dry-sump system. Oil is forced under pressure to all bearings, including the piston-pin bearings, to which it flows through the rifle-drilled connecting rods. The double scavenging pump draws oil from both ends of the crankcase and forces it through the oil filter and oil cooler to the main reservoir, from which it is drawn by the main pressure pump, which delivers it under pressure to the main, connecting-rod, camshaft, piston-pin and idler-gear bearings, with a metered feed to the cylinders, etc. The filter, of the permanent metallic type, is arranged for easy access for cleaning.

Two downdraft carburetors with accelerator pumps are fitted, one for each bank of cylinders, and each provided with an air cleaner. The air cleaners are very accessibly located. Fuel feed from the main tank, mounted in a cradle on the right side of the frame, is by a mechanical pump. A hot-spot manifold assures smooth idling.

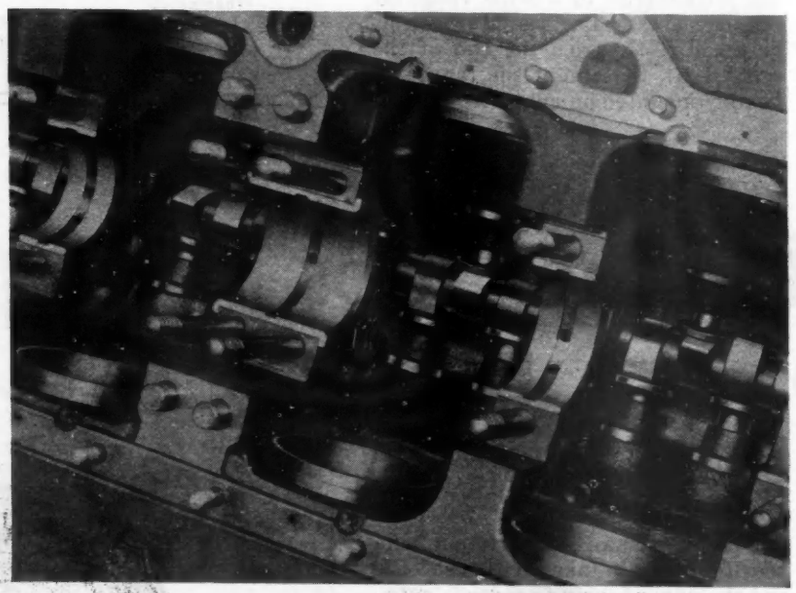
The mechanically-operated centrifugal governor is driven by gearing off the camshaft and limits engine speed to 2400, which is said to be well below the maximum safe limit of operation.

The radiator, which is mounted on the subframe and therefore is removable with the engine, is of the flat-tube type and mounted on rubber. It is provided with a unique tank designed to minimize loss of water due to expansion (shown on page 448). The action of this expansion tank is automatic and is controlled by the radiator cap. When the radiator is being filled and the cap therefore is off, the overflow is sealed and a definite amount of air is trapped in the top tank. When the cap is screwed on, the valve is opened and the air is released, which leaves space into which the water in the cooling system can expand. An automatic, air-operated winter front can be furnished as an extra.

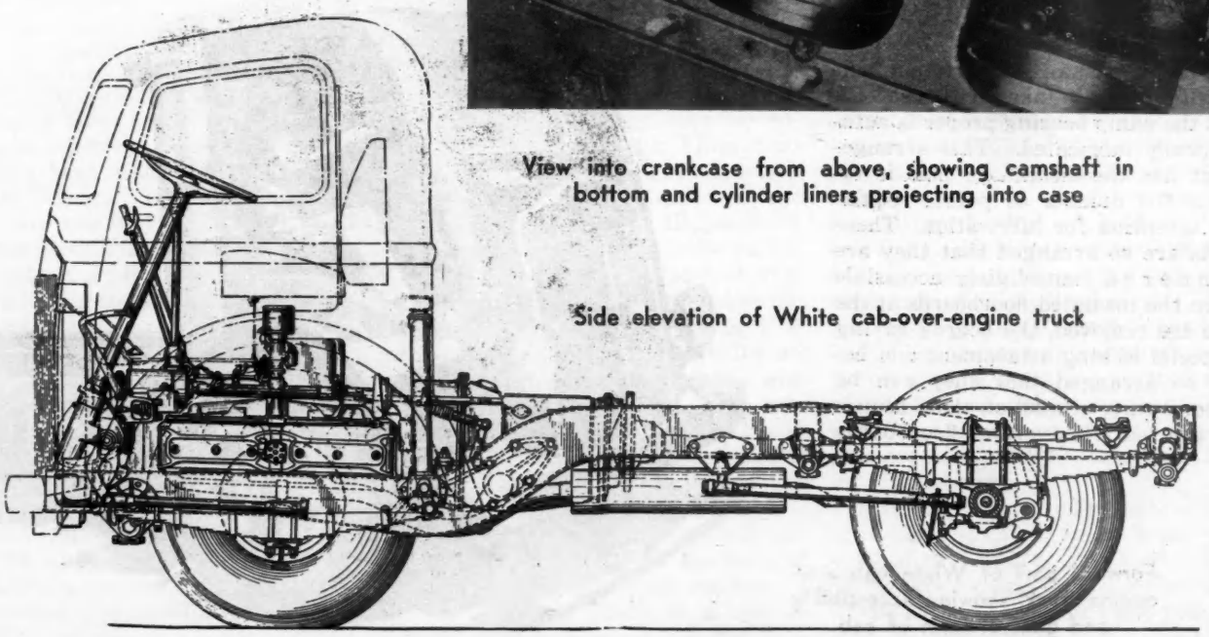
The electrical system is of the 6-volt type, with heavy-duty or truck-type battery. Inition is by battery spark and spark advance is fully automatic.

The wet type of single-plate friction clutch, which has been successfully used by White for more than twenty years, is used on these trucks. The driven disk has outside and inside diameters of 15¼ and 8 in. respectively and its total friction surface figures out to 264.8 sq. in. Its anti-friction throw-out bearing is supplied with oil from the engine lubricating system.

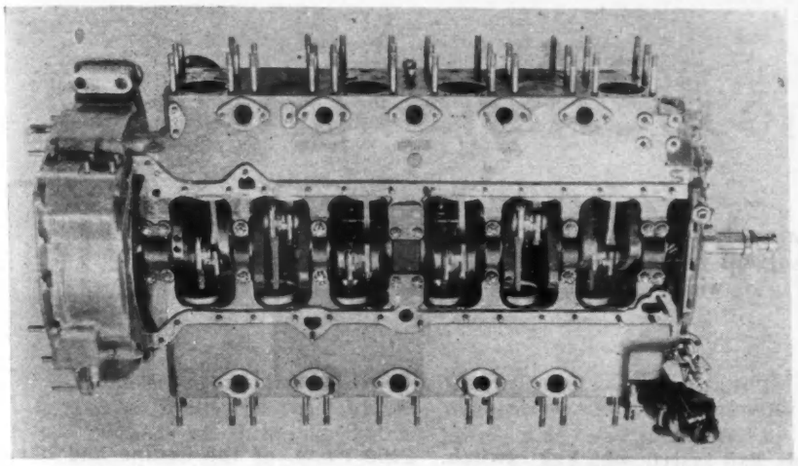
Three White-designed four and five-speed transmissions are available for use on these trucks. A four-speed transmission is standard on Model 730 and a five-speed, with direct drive in fifth, on Model 731. A five-speed, overdrive transmission is optional on the 731 at extra cost. In the five-speed transmission with direct drive in fifth the first gear is carried in a case secured to the rear of the main transmission housing, while in the transmission with overdrive the fifth gear is so housed. The direct ratio for the truck with standard five-speed transmission is 8.11:1, while the overdrive ratio of the optional transmission is 0.789. In the standard transmission of the Model 731 the gears for three of the forward speeds are of the silent, constant-mesh helical type, while in the optional over-speed transmission four of the five speeds are silent.



View into crankcase from above, showing camshaft in bottom and cylinder liners projecting into case



Side elevation of White cab-over-engine truck



Top view of complete engine with crankcase cover removed

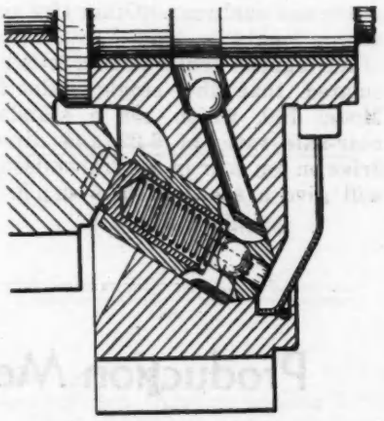
Reduction ratios for the different gears are given in the following table:

Transmission	730	731	
Standard (No. Forward Speeds)	4	5	
Optional	5	..	
Ratio Standard Transmission			
5th		.789	1.00
4th	1	1.00	1.426
3rd	1.731	1.85	2.895
2nd	3.110	3.29	4.98
1st	6.546	6.26	8.11

To assure positive lubrication of the constant-mesh gears, a special design of oil pump is incorporated in the transmission, as shown in section in one of the illustrations. This is a spring-return plunger pump, the barrel of which is set into an inclined drill hole in one of two adjacent gears, while the plunger is actuated by a cam on the rim of the other gear. All transmission gears are of chrome-nickel steel, heat-treated. Transmission shafts are of large diameter to keep shaft deflection down to a minimum. Provision for power take-offs is made on all transmissions.

All universal joints are of the needle-bearing type, which need attention to their lubrication at long intervals only and have greater capacity for a given size than joints with plain bearings.

The rear axle used in the Model 731 is a double-reduction full-floating design with heat-treated steel tubes pressed into the one-piece housing. The first reduction is by spiral bevel gears and the second by herringbone gears. An oil-circulating system has been worked out for the rear-axle gears which is said to assure a continuous supply of lubricant to the tooth-contact surfaces and the bearings even under low-speed and cold-weather conditions. The drive shafts, of heat-treated alloy steel, are splined at both ends, and special dowels transmit the power to the hubs of the rear wheels. The housing is cast in one piece and has heavy brake supports cast on.



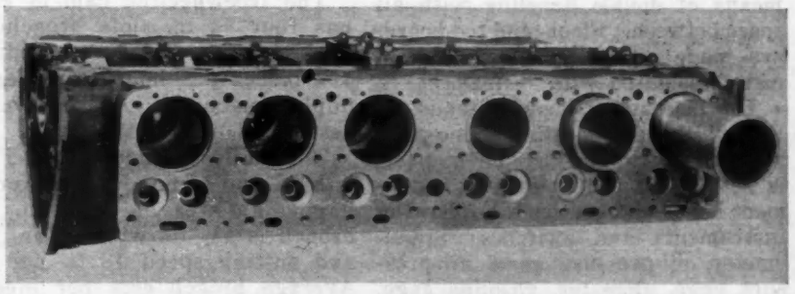
Plunger pump built into transmission gear for the lubrication of its bearing

Radius rods are used and are provided with automatic means of adjustment for wear in parts, and with grease boots at the joints. The rear axle of Model 730 is identical with the one described except that it contains a single-reduction final-drive gear, with a standard reduction ratio of 7.14 and optional ratios of 6.29, 5.67, and 5.22.

All springs are of alloy steel and of the semi-elliptic type. Front springs are shackled at the rear end, which is the proper arrangement in view of the fact that in these trucks the steering arm is located forward of the front axle. Rear springs are of the two-stage type, helper springs coming into action after the main springs have been compressed through a certain range. The stress in the spring leaves remains well within the safe limit even if the clearance between axle and frame is completely taken up. Front springs measure 46 by 3 in.; rear springs, 56 by 3½ in. The former have 20 and the latter 21 leaves.

Owing to the comparatively short wheelbase, coupled with more than the usual overhang at the front, the frame of the two trucks has an exceptionally high factor of safety. It is made of heat-treated pressed steel channels of 8 by 3½ by ¼ in. cross section for the side rails, and has both tubular and pressed steel cross members. Diagrams of frame moments and stresses for one of these models with 162-in. wheelbase and for a conventional truck of 168-in. wheelbase indicate that the bending moment on the side rails is only 57 per cent as great in the new model as in the conventional one, and the stress in the side rails only 59 per cent as great.

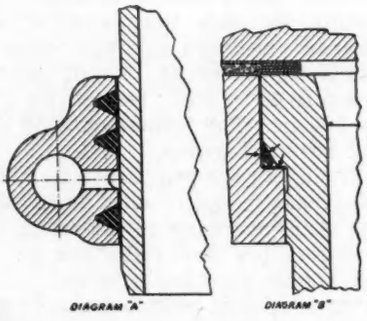
The steering gear, which is of the cam-and-lever type, is designed to be mounted in a saddle, so that it can be easily and quickly removed when required. All steering links are heat treated and the joints are of such size as to ensure long life. Owing to the great width of the front tread (80 in.), the truck can be turned in a circle of small radius. The front



Engine block looked at from one side, showing two cylinder liners partly removed

axle is of the reverse Elliott type and is specially designed to withstand severe braking torque.

Service brakes are of the four-wheel, mechanical, two-shoe type, air-operated. Gun-iron drums are used and are heavily ribbed to minimize distortion under brake application and to increase the heat-radiating surface. Front brakes measure 16½ by 4 in.; rear brakes, 16 7/8 by 6 in., and the total effective braking area is 632 sq. in. Ventilated dust shields are provided. A parking brake of the disk type, with four shoes, is mounted at the rear of the transmission. The emergency-brake lever and the gear-shift lever are mounted in the center of the cab, for convenience in operation.

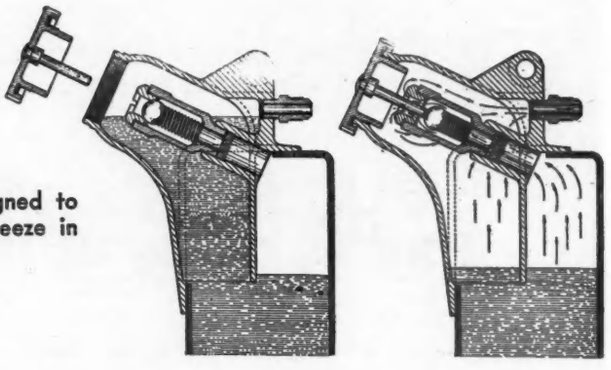


Sealed joints at inner and outer ends of cylinder liners

The regular equipment furnished with the chassis includes a "streamlined" cab, front fenders, an electric horn, front channel bumpers with spring mountings, headlamps with dimmer control, a tail lamp and one spare rim, together with a set of tools and a jack. A spare-tire carrier under the rear of the frame is optional at extra cost.

Dash, wheel houses, front fenders and radiator grille are built into the cab, which is ventilated by two large ventilators placed in the front panel, one on each side, and by two large, chromium-plated windshields hinged at the top and swinging forward. The cab is thoroughly insulated by means of double paneling with air space between. Floor- and toe-boards are made either of Plymetl or of metal insulated with Seapak.

The instrument board extends the full width of the cab. A one-piece polished aluminum instrument panel is set in the center of the instrument board and carries the following instruments and switches: Speedometer, oil-pressure gage, air-pressure gage, ammeter, gasoline gage, water-temperature gage, ignition switch, electric starter button, carburetor choke, head and tail light switch, and instrument light switch. The throttle control is located on the instrument board at the left of the instrument panel.



Radiator closure designed to prevent loss of anti-freeze in winter

Both Models 730 and 731 come in five lengths of wheelbase of 108, 126, 144, 162 and 180 in., while Model 731T (tractor) comes in a wheelbase length of 100 in. Cast steel wheels are fitted regularly and the following tire equipment is standard: Model 730, 9.75-20, single front and dual rear; Model 731, 10.50-20, single front and dual rear. Other tire sizes are optional.

As regards performance, it is calculated that the single-reduction Model 730, which has a standard rear-axle ratio of 5.22 and direct-drive on top gear in the transmission, will give a speed of 52.5 m.p.h. at 2400 r.p.m. of the engine and have a gross ability of 3.62 per cent, which means that it will climb grades up to this steepness with full load in high gear. This compares with 52 m.p.h. and 3.58 per cent for the White Model 640K, and 50.5 m.p.h. and 2.85 per cent for the White Model 630K, all calculations being based on a gross load of 26,000 lb. The Model 731, with a standard gear ratio of 9.51 and an overdrive ratio of 0.789, making the effective reduction ratio 7.5, at 2400 r.p.m. of the engine gives a maximum road speed of 38 m.p.h. and a gross ability in high gear of 4.35 per cent, as compared with 39 m.p.h. and 4.1 per cent for the White Model 641K and 34.5 m.p.h. and 3.6 per cent for the White Model 631K.

Production Men Talk Equipment Buying at Detroit SAE Meeting

(*Continued from page 441*)

here, it is anticipated that the broach cost per piece will decrease with experience and improving practice."

The freewheeling cam in Fig. 5 has four ⅝ in. slots broached in two steps by indexing, producing 127 pieces per hour on a vertical duplex machine. Average broach cost is $0.00057.

The malleable housing in Fig. 6 is broached to finish the lower pad having an area of 7 sq. in. The broach is 4½ in. wide, 30 in. long, and cutting speed 18 ft. per min. Average broach cost per piece is $0.0018.

The piece in Fig. 7 has four flat surfaces, two at each end, cut from the cylinder. Two pieces are handled at a time with an output of 179 per hour. About 9000 pieces are finished between grinds at a broach cost of $0.0019 per piece.

A NEW catalog on straight roller radial and thrust bearings recently issued by the Bantam Ball Bearing Co. of South Bend, Ind., contains, besides a complete list of dimensions and capacities in both metric and inch sizes, a table of speed factors together with general modification factors, as well as a table of tolerances and fitting practices.

Governmental Second Thoughts on Business Regulation

IN Mr. Roosevelt's present purpose to seek an industrial truce by the new methods which he has sketchily outlined to us, there lies the suggestion, at least, of a repudiation of those methods by which NRA came into being. In it there seems to be also the promise of a changed attitude toward business and business men generally. A good deal of comfort and some much needed confidence may be derived from the hope that such inferences are logical and sound.

Whatever may have been the original plans and aims of its initiators, the Recovery Act, as the law of the land, in spite of its ambiguities, seems clearly to place the *may* in code making ahead of the *must*. When the administration of the law was taken up, however, the *must* was definitely and most emphatically placed ahead of the *may*. The course of procedure which is prescribed or implied in the statute was turned completely about in its application. Now, apparently, the President has decided that things will work out better all around if he makes what might amount to a new beginning and puts first things first.

Before the N.I.R.A. came up for legislative consideration, heroic accomplishments had been recorded by the new administration. They were in a field where drastic action was imperative and where quickly realized results were practically inevitable. The obviously correct course was followed and a serious crisis was ended. It was as if water had been turned on a burning house and the fire put out. The job was well done. One unfortunate consequence, apparently, was that belief in the superhuman endowments of our new national fire department became solidified into a positive conviction that no fire was too big or too deeply buried to be put out by it in short order.

There were other large problems to be solved. Industry wouldn't recover and something had to be done about it. The Recovery Act was passed. Then came the codes. There was ballyhoo and bell-ringing. There were propaganda, parades and pressure. A cure-all prescribed by NRA was, to a rather greater than less extent, forced down a sick patient's throat.

It is true that a few industries and a somewhat greater number of trades rushed north or south or east to Washington waving hastily prepared and half-baked codes hoping that the President would sign them almost before he had signed the act itself. Most of these early code seekers, however, were forced to wait until some of their bigger and perhaps more reluctant brothers had been codified. Some of those who hesitated were brought into line by rather pointed persuasion. Others were codified through various kinds of coercion, including "the bludgeoning proceedings of code conferences," as Herbert Hoover has described them, through threats of boycott and the menace of destruction in the claws of the Blue Eagle.

by Julian Chase

As things stand today—and let us not forget it—the employers of labor in industry are either now subject to complete domination by the President or could be made so, without immediate recourse, by the issuing of an edict. If wages, working hours and other conditions of employment generally are not what he thinks they should be to carry out "the high purposes of the Recovery Act," it is because he does not choose to exercise his power to change them, as he did, for example, in the case of the cotton garment industry.

If the Recovery Act is constitutional, it may well be said again, the President has at his hands as weapons of enforcement to be used only against employers, the powers of imprisonment and confiscation. The employer side of industry is under his thumb. He has no power over labor as such and he has never asked for any. Where, within the limits of reality, it may be asked parenthetically, is that thing which Donald Richberg chooses fancifully to call "industrial self-government"?

These existing conditions are an expression chiefly of the 1933 ideas of President Roosevelt and his Recovery Administration minions as to how "to maintain united action of labor and management *under adequate governmental sanction and supervision*," "to promote the fullest possible utilization of the present productive capacity of industries," "to improve standards of labor and otherwise to rehabilitate industry" and "to provide for the general welfare."

In his latest fireside chat the President maintained that trade and industry were *permitted* to write their own ideas into the codes "so far as possible, consistent with the immediate public interest of this year." Price fixing and production curtailment had governmental approval, at least, in NRA and governmental sponsorship, most certainly, in AAA. But, be that as it may, the important thing, the hopeful thing for consideration at the moment is that, in his discussion of NRA as an active agency in the restoration of prosperity, he said:

"It is now time to review these actions *as a whole* to determine through *deliberative* means in the light of experience *from the standpoint of the good of the industries themselves*, as well as the general public interest, whether the methods and policies adopted in the emergency *have been best calculated to promote industrial recovery and a permanent improvement of business and labor conditions*." The italics, of course, are ours.

Just what this will prove to mean is a subject of much speculation. It seems simple and easy to understand

(Turn to page 451, please)

Just Among Ourselves

More Taxes Proposed as Cure for Rail Ills

"THE power to tax is the power to destroy" and Jesse Jones, RFC chairman, following a conference with President Roosevelt, proposed this week that the taxing power be used in just that manner on transportation agencies competitive with the railroads to strengthen the creaking financial structure of the latter. In Mr. Jones' opinion, it is either such destructive taxation or direct governmental subsidies and of the two he prefers the former.

Of course, Mr. Jones didn't put it so bluntly. He said, according to the press, "Interstate highway traffic should be taxed on a plane with the railroads," the clear inference of this being that highway transportation at present enjoys an unfair competitive advantage over the railroads because of a discriminatory tax situation.

Any fair minded person will admit that there is no rational connection between rail and highway taxation. Each should pay its fair share of governmental costs whether or not the result is that both carry the same or very different taxation burdens. As for the theory that one agency should be taxed so that its efforts to compete with some other agency will be hamstrung, it is so plainly indefensible that it needs no discussion.

Whether railroads and highway tax burdens at present apportion a fair share of governmental costs to each agency, is an issue over which controversy has raged for years and probably will continue to rage. Far be it from us to attempt to settle it dogmatically here. However, it is a fact that last year highway users paid $1,137,872,176 in special motor vehicle taxes. Truck operators, it is estimated, paid $224,029,445 in 1933 in license fees and gasoline taxes alone. While the railroads and Jesse Jones may question the adequacy of these taxes, in view of their huge total, it is hard to believe that, if highway users are not paying their share, they are not coming mighty close to doing so.

* * *

If They Don't Vote, They're Not Bound?

MINORITIES will be wise to steer clear of elections conducted by the NLRB or by regional labor boards if they want to preserve their right to bargain through their own representatives. For if they participate in such elections they are bound by the results and must accept the representatives selected by the majority.

This seems clearly to be the moral of the comments on the Houde ruling made last week by Donald Richberg. He said he could find no conflict between the Houde decision and the joint interpretation of 7A which he and General Johnson made over a year ago. It will be recalled that that interpretation was to the effect that under 7A minorities and individuals could bargain separately if they so desired.

The clear implication of Mr. Richberg's remarks is that by participating in the election, members of the Houde employees' association bound themselves to accept the will of the majority. On the other hand, it seems equally plain that in Mr. Richberg's opinion, if the members of the employees' association had not taken part in the election, the representatives elected would have been authorized to bargain ONLY for the workers who voted—and thus, the employees' association would have preserved its right to select its own agents for collective bargaining.

* * *

If Minorities Boycott Elections—

WHETHER the NLRB sees eye-to-eye with Mr. Richberg in this interpretation of the Houde decision presumably will not be known until it is called to pass upon the specific issue. However, if the Board should agree with Mr. Richberg, there would seem to be little reason for it to exercise its power to hold elections. Minorities and groups which were doubtful of their ability to command a majority would simply stay away from the polls, and the election would be nothing more than a poll of the majority organization. In that event there would be no more need for government supervision of the voting than of subsequent elections which any minority might hold. The net result under these circumstances, of course, would be proportional representation.

Naturally Mr. Richberg's remarks brought a squawk from the A. F. of L. as it holds that representatives selected by a majority of all workers in a group, are the exclusive bargaining agents—even for minorities and individuals who do not participate in the election.

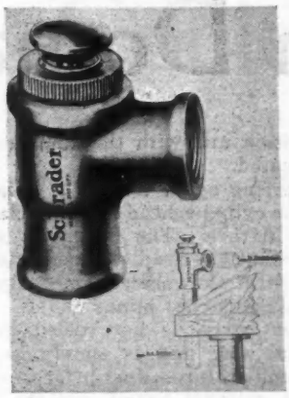
While the representation issue probably will continue to be a controversial one until the Supreme Court determines it finally, it is meanwhile encouraging to automotive employers to know that so important a figure in the federal administration as Mr. Richberg holds that 7A establishes the right of minorities to bargain through representatives of their own choosing.

—The Editors

NEW DEVELOPMENTS
Automotive Parts, Accessories and Production Tools

Industrial Blow Valves

Two new industrial blow valves for installation where stationary control of compressed air is desired have been announced by A. Schrader's Son, Brooklyn, N. Y. The one illustrated



is intended for use on benches and on light machines. Use of this valve permanently attached to an airline eliminates picking up and laying down movable devices. It can also be placed in series with the airline under the bench so that the air can be controlled with the foot, keeping the operator's hands free for other duties.

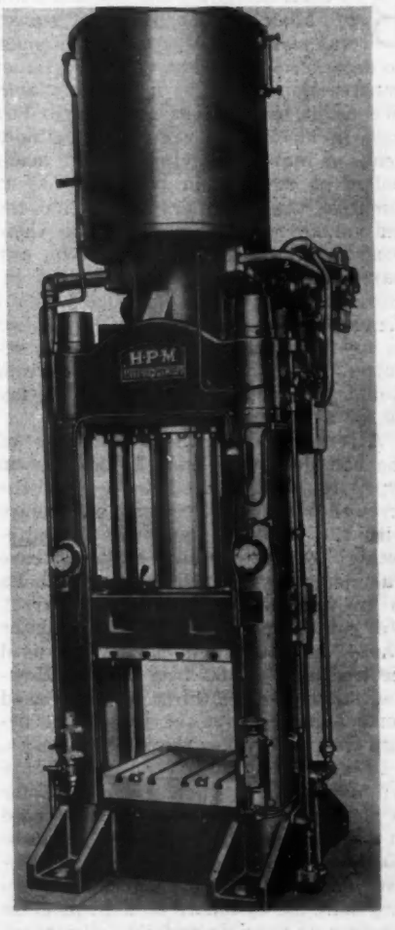
The other device is a heavy duty valve, tee-type, having standard ⅜ in. female pipe thread connections. It is intended for power presses, eyelet machines, automatic screw machines, etc., where an intermittent blast of air is required to clear the work, remove chips or discharge completed work. The construction is extra heavy to withstand punishment. It may be bolted directly to the machine frame or to a suitable bracket.

Long Stroke Drawing Press

Streamlined products, as, for example, automobile headlamps, are demanding facilities for deeper drawing operations than much existing press equipment is capable of handling. The Hydraulic Press Manufacturing Company, Mount Gilead, Ohio, has met this requirement through the development of a long stroke press of their Hydro-Power Fastraverse class, equipped with synchronized-pressure die cushion.

The H-P-M die cushion added to this press particularly fits it for performing deeper draws in single press operations. This cushion is actuated by a series of hydraulic cylinders which are hydraulically connected with the same source of pressure that operates the press. Thus the action of the die cushion is synchronized automatically with press movements and pressure, the blank-holding pressure being automatically proportioned to the drawing pressure.

The press, including the die cushion, is completely self-contained with direct-motor drive through the Hydro-Power unit, mounted on the press-head, and fitted with a complete system of H-P-M



patented controls for both press and die cushion.

The operator's press controls, including gage, are conveniently grouped on the right hand press column, while the die cushion pressure regulator and gauge are located at the left.

Governmental Second Thoughts on Business Regulation

(*Continued from page 449*)

if taken by itself. One question which is logically asked and to which this statement may be an affirmative answer, is whether the President is at last ready to extend the silk-gloved hand to both industry and labor. It will be well for all of us if he is and does. Labor and the man-on-the-street who cheers when industrialists and capitalists are damned or ridiculed represent a substantially larger portion of the country's voting strength than do the nation's business men, big and little. But when it comes to starting things that will put us on the road to real recovery the latter and smaller group of citizens is infinitely more important. No administration ever needed prosperity more than the present one and that need is becoming more acute every day.

Our President must surely see that, in the next two years, the people will put prosperity, earned rather than doled, ahead of personality and political party. No group can help him more in restoring real prosperity, or is more eager to do so, than the big and little fellows who are prime movers in all industrial progress. They have not been holding back because of political antagonism, lack of patriotism or puerile peevishness over jibes, taunts and mud slinging. Whatever "inhibitions" they have had have been justified. It is trite but true to say that they have lacked confidence, confidence in the stability and fundamental soundness of many factors which can make or break any business enterprise. Why? There seems to have been little mystery or misunderstanding about it outside of Washington.

Our hopes are raised by what now seems to be an altered governmental attitude toward industry and industrialists for, if maintained, it may lead to better all-around understanding and may prove to be the first step —but only one little step—in rebuilding confidence where it can do the most good.

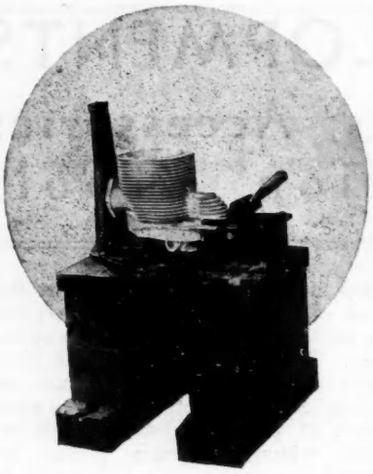


Fig. 1—A cylinder head in the fixture ready to receive the cylinder barrel

Aluminum Heads Are S Cylinders in Domark A

BEFORE designing the Donmark line of Model 6A engines a survey was made of the possible customers to determine just what type of cylinder construction would be most acceptable. We could furnish either the cylinders cast in block with removable cylinder heads or individual cylinders with heads bolted or screwed in position. To our surprise, the customers stated that the individual cylinder appealed to them most in that in case of trouble on any particular unit, that unit could be removed and a new one installed without dismantling the engine. This appealed to us inasmuch as the machinery required for relatively small production would not require as great an outlay as for a block type of engine.

After analyzing the advantages of the bolted-on type and the screwed-on type, it was decided to go to the screwed-on type. Previous experience with the bolted-on type was not altogether satisfactory since extreme care was necessary in tightening the bolts to prevent distortion of the barrel. We could find no previous practice where an aluminum head was used screwed onto a cast iron barrel. However, there was nothing which seemed unmechanical about the job, so the design was undertaken with that idea.

In aircraft practice, of course, the cylinders are not held close together so that full circular fins can be used on the cylinder barrel. On the automotive type of engine, to avoid excessive length of the engine, it is necessary that the cylinders be kept as close together as possible and this eliminates the possibility of using symmetrical fins. In other words, the fins on the center line of the engine are shorter than they are 90 degrees to the center line. It is thus seen that the flange, where it bolts to the crankcase, must be machined so that the cylinder is held in the correct location. In aircraft practice the lower flange is machined after the head and barrel are screwed together. In the Domark engine the problem facing us was to so design the head and barrel that when they were assembled the lower flange, with its bolting holes, would bear a definite relation to the cylinder ports. This problem led us to design the fixtures shown on the enclosed photographs.

Fig. 1 shows one of the Model 6A cylinder heads in this fixture ready to receive the cylinder barrel. Fig. 2 shows the cylinder barrel screwed down in position and with the stop mechanism located.

Referring again to Fig. 1, it is seen that the cylinder head is easily clamped in the fixture. The fixture is so designed that the head will not enter unless it is at the correct temperature of 600°F., plus or minus 25°F. The cylinder barrel is not cooled in any artificial way and is simply kept at room temperature. Just prior to screwing the cylinder barrel into the head, the threads are painted with a high grade aluminum paint which acts as a sealer and when the assembly is cool

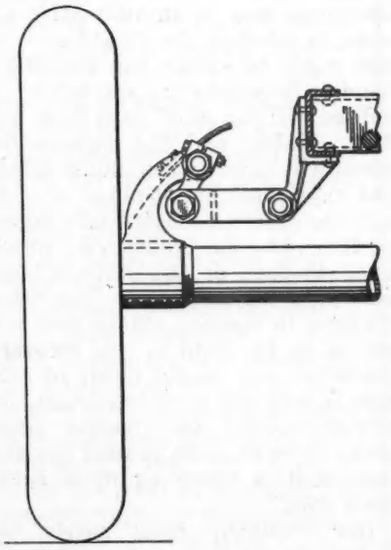
Spring Rate Increases in New Torsion Bar

A TORSION-BAR suspension system for vehicles has been developed by Albert F. Hickman of the Truck Equipment Company, Buffalo, N. Y., and is being offered the industry for original equipment for both front and rear axles of passenger cars and the front axles of trucks and buses. Mr. Hickman also is the inventor of the gravity system of suspension for the rear ends of heavy trucks which is said to be in extensive use at the present time.

The torsion rods for this suspension, one for each end of an axle, run approximately the length of the chassis frame, being mounted in ball bearings in brackets on the frame. The ends away from the axle are adjustably stopped against turning in one direction so that they will support weight, but are free to turn in the opposite direction. The axle ends of the rods have short levers (5 to 6 in. long) keyed to them, the outer ends of which connect by shackles to suspension arms forged on the axles.

As the torsion-rod spring is twisted the effective lever arm through which the load acts on it decreases continuously, which modifies the deflection characteristic of the suspension, making it more like a parabola than a straight line. Thus the stiffness of the suspension increases with the deflection and a sort of bumper action or non-bottoming action is obtained under extreme shock.

This suspension also has the "gravity" feature characteristic of the



A lever arm on this torsion bar connects by a link to bracket formed on the axle

Screwed to Iron Air-Cooled Engines

by C. T. Doman
Doman-Marks Engine Co.

the barrel is practically a permanent part of the assembly. Prior to the use of aluminum paint considerable trouble was encountered with leaky threads.

To locate the lower flange of the cylinder in correct relation to the cylinder head ports, it was necessary to qualify both the threads on the barrel and the threads on the head. This means that the thread always starts at the same location, and thus when the head is screwed down into position it is located within a few thousandths of every other assembly.

The stop mechanism is so worked out that on the last revolution of the screwing operation the stop bar contacts the vertical stop on the fixture and thus prevents the head from being turned further and assures a definite location of the barrel with respect to the cylinder head ports.

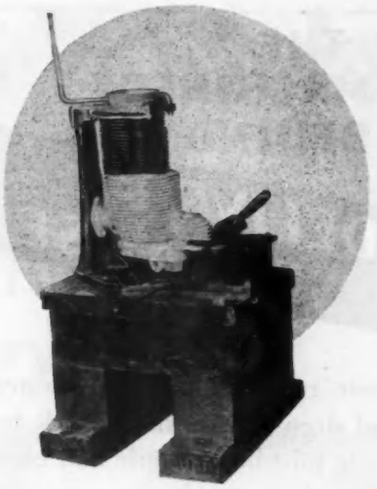


Fig. 2—Shows the cylinder screwed down in position

After experimenting with various shrink fits between the cylinder head and cylinder barrel, it was found that the following limits work out best: Threads .008-.012"; lower land .007-.010"; upper land .008-.011".

Early experiences with this operation showed that the fundamental problem was to make the screwing operation just as short as possible, otherwise the heat from the cylinder head would run into the cylinder barrel and expand it to such a point that it would lock on the threads before it was down in position. The entire operation now only takes seven seconds and absolutely no trouble is experienced from sticking.

After the cylinder unit is cooled down to room temperature the cylinder is bored and honed to finish size. The finish boring is done following the screwing operation since it was found that boring previous to the screwing operation would result in a distorted hole.

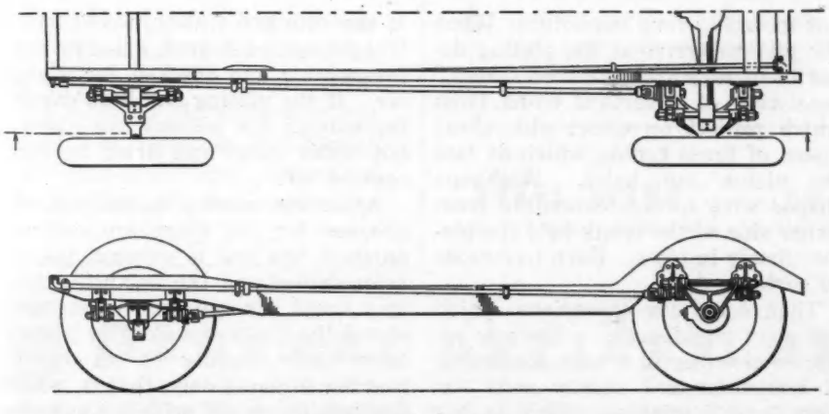
Following the final finishing operation on the cylinder bore the lower flange of the cylinder is faced off in order to bring the ports at the correct location. At the same time this brings the compression ratio of the various cylinders to within a very close tolerance.

After the valves are installed in the cylinder, the entire unit is tested under 90 pounds pressure for leaks, not only through the valves themselves but also through the threads of the joint between cylinder barrel and cylinder head. This inspection is in addition to two previous inspections, one done at the foundry and another just following the machining of the cylinder head itself.

with Deflection Suspension System

gravity spring suspension system made by the firm for heavy vehicles. As already mentioned, the torsion rods are free to turn in their mountings in the direction opposite to that in which the load on them tends to turn them. They thus allow the axle to drop freely away from the chassis either at the end of an upward motion following the striking of an obstacle or when dropping into a hole. The body therefore is solicited downwardly in such a case only by its own weight and cannot accelerate downwardly faster than the passengers or any loose objects in the body. This means that the passengers will not leave their seats and the suspension will consequently be more comfortable.

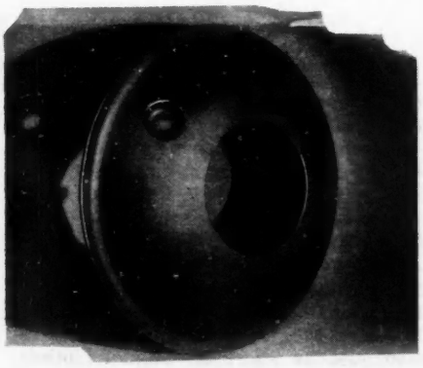
Among the advantages claimed for this suspension are that side sway is reduced almost to the vanishing point, scuffing and skidding of tires are reduced by the relative freedom between frame and axle laterally, and that twisting stresses on the frame are reduced. There is no change in caster with spring action.



Chassis with torsion bar

THE MACHINERY BEHIND THE DELIVERY PROMISE

Your requirements in stamped and deep drawn metal work include jobs both simple and complicated—naturally you are interested in knowing that your source of supply is equipped to handle all your needs—quickly.



WHEEL DISC

Our plant reflects in choice and quantity of equipment the seasoned experience of our engineering staff.

Rely on us to correctly size up the job; to give you a helpful delivery schedule; and to produce stampings that satisfy you in every particular.

How Pontiac Pistons Are Tin-Plated by Small Force

ELECTRO-PLATING of cast iron pistons was developed and first used by Pontiac, according to claims made in a recent announcement. The tin-plated piston is covered by patents. Its first use was as a temporary expedient in 1928 without any thought of its possible commercial value. After several thousand miles of operation, it was found that the tin had neither melted, flaked off, nor worn appreciably. Further experimental work was carried on and finally put into production on Pontiac cars about three years ago.

The tin-plating operations as handled in the Pontiac plant proceed rapidly and require but three men not including four inspectors. When the pistons arrive at the plating department they are racked on "trees," consisting of a vertical trunk from which project on either side short pieces of brass tubing which fit into the piston pin holes. Wishbone shaped wire springs extending from either side of the trunk hold the pistons firmly in place. Each tree holds 10 pistons.

Then come six operations which follow in rapid order. First is an electro cleaning in a bath consisting of trisodium and caustic soda for from 3 to 5 minutes. This is followed by a cold water rinse; a dip in a 5 to 10 per cent solution of muriatic acid; cold water rinse; dip in a solution of caustic soda (2 ounces per gallon) and a final cold water rinse. Pistons remain in the cold water bath until they are placed in the plating tank.

Plating is done in a Meaker semi-automatic tank measuring 3½ x 3½ x 20 feet. The conveyor has 32 hooks and completes one revolution in 60 minutes, thus making the capacity of the tank 320 pistons per hour. Usually from 40 to 50 minutes are required to build up a coating 0.00075 in. thick.

When the plating has progressed far enough the "tree" is taken out of the bath and rinsed in cold water. One piston is removed, dried by compressed air and checked for diameter. If the plating has been carried far enough the pistons are given a hot water rinse and dried by compressed air.

After the plating is finished the grooves for the rings are cut and finished, the top is ground, the oil holes drilled and the balancing boss spot faced for weight. When completed the tin-plated Pontiac pistons carry their coating of tin on the bearing surfaces only, that is, where they are in contact with the cylinder walls.

Tin plating Pontiac pistons handling in trees of 10

tion for Fine Motor Vehicles

BETHLEHEM Nickel-Molybdenum GEAR STEEL

STEEL for ring-gears must combine great strength and high shock-resistance, to stand the stresses encountered in use, with easy machining and uniform heat-treating properties to facilitate production.

In perfecting Bethlehem Nickel-Molybdenum Gear Steel untold effort has been devoted to the development of melting practice that will turn out consistently, heat after heat, gear steels that measure up to exceptionally high standards in respect to all of these points.

Ability to do this has come as the natural outgrowth of years of close liaison, maintained by alert metallurgists, between the customer's plant and the open-hearth furnaces.

The result is that in tooth strength, in machinability, in uniform heat-treating characteristics, in freedom from warpage, Bethlehem Nickel-Molybdenum Gear Steel is outstanding. It is used in the ring-gears and pinions of many of today's motor cars.

TOOL STEELS made by the finest practice at every step

High-Frequency Induction Melting

Liberal Ingot Discard

Hammer-Cogging of Ingots

Program-Controlled Annealing

Rigorous Inspection

THE finest equipment and the most modern techniques are advantages in producing superior steel of any type. Bethlehem Tool Steel gets the right start by being melted in the high-frequency induction furnace, which makes steel to laboratory standards of accuracy. Equally high standards are maintained through succeeding operations as evidenced by such practices as large discards from both top and bottom of the ingot, hammer-cogging, instead of rolling the ingots, program-controlled annealing, and a rigorous inspection that is virtually a third degree. There is a grade of Bethlehem Tool Steel available to serve every automotive purpose, economically, dependably and effectively.

BETHLEHEM ROLLED SECTIONS bring savings

MANY an automobile manufacturer has found parts practically ready-made among the wide variety of special sections that can be rolled on Bethlehem's bar mills. Often it is only necessary to cut off a piece and the finished part is there. The cost of these special rolled sections is often not a great deal more than for plain bars.

STEEL WIRE . . . Bolt and screw wire; spoke wire; spring wire.

Silvery Mayari

SILVERY MAYARI is a low-carbon, high-silicon, high-manganese pig iron that opens the way to the economical manufacture of high-strength iron castings.

Besides facilitating the manufacture of high-test castings, Silvery Mayari, like Standard Mayari, produces castings that are free from blow holes and spongy spots, even on thick sections. Castings that are easily machined, highly resistant to heat and wear, and free from segregation.

BETHLEHEM STEEL

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